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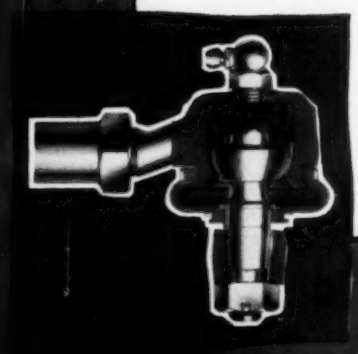

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Ray Merrick-says...

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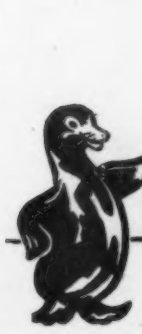

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£39/18 DELIVERED

16½ x 8 FT.

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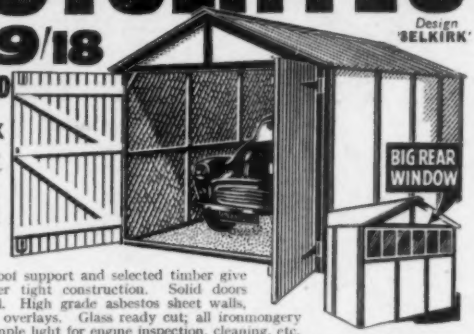

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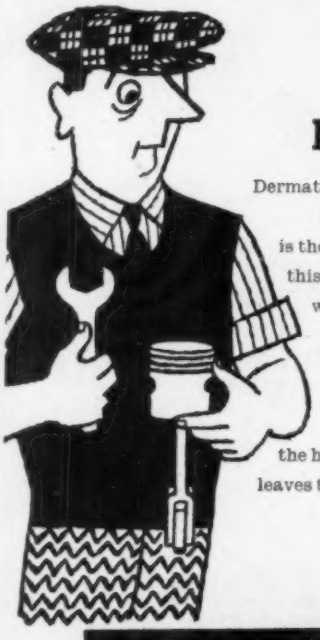

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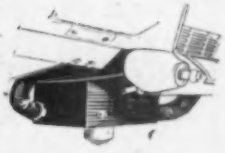
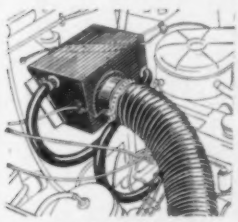


Vauxhall VICTOR interior fitting



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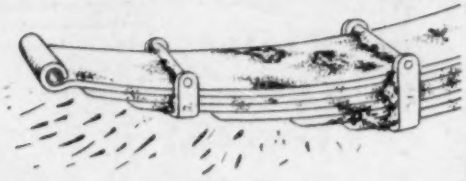

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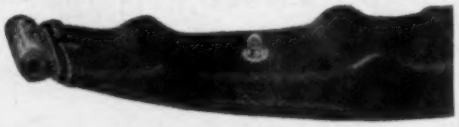

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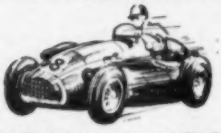

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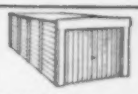

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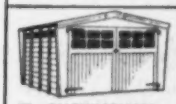

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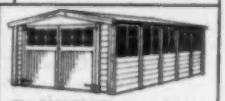

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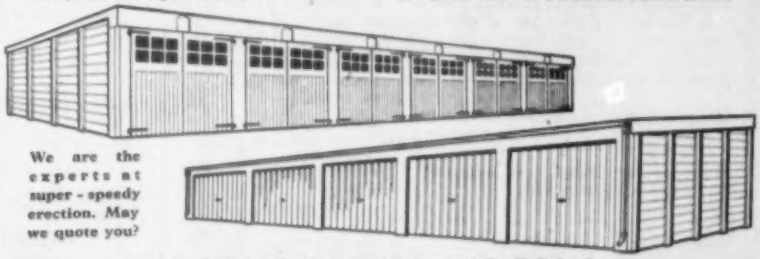

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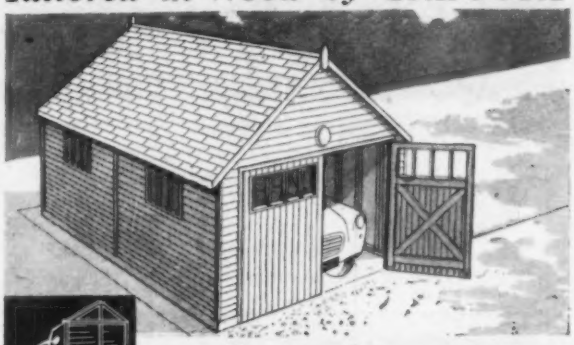

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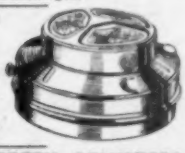

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List Price 24/6. BARGAIN PRICE **17/6**
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Famous make. Will burn for 250 hours with only one filling of paraffin. Built on the miner's lamp principle it can be used in close proximity to petrol vapour. Fitted with outside flame regulator. Ideal for protection against frost.
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Still the favourite of thousands of motorists who prefer a non-detergent oil. Used with great success with all makes of cars. SAE 20 (Gamagolite), SAE 30 (A), SAE 40 (XL) AND SAE 50 (XXL). **5 GALL. DRUM 39/6**

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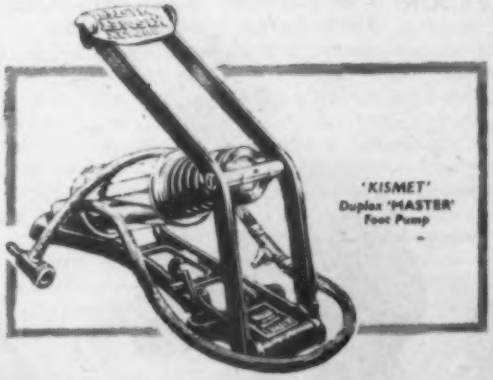

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WILLIAM TURNER (KISMET) LTD.

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Governing Director: William Turner, M.I.Mech.E.

Photo Autosport

TAKING THE RIGHT LINE

ROY SALVADORI DISCUSSES THE AUSTIN HEALEY 100 SIX WITH JOHN BOLSTER

Scene: Goodwood, where British racing driver Roy Salvadori was doing a few warming-up laps in an Austin Healey.

BOLSTER *You were having a bit of a go then, weren't you, Roy?*

SALVADORI Well, I was trying a bit, but this is just the sort of course for the 'six'. There's plenty of power throughout the range and, with dig like that, it would be disastrous if you couldn't stop. But, I must say, these brakes are spot on.

BOLSTER *You were obviously doing at least a hundred miles an hour on that last lap.*

SALVADORI Yes. I had well over the ton most of the way down the straight.

BOLSTER *How did she handle?*

SALVADORI I was quite happy however hard I pushed it. The car seems to be perfectly balanced.

BOLSTER *And I reckon there's not a lot of surplus weight, either.*

SALVADORI Oh, no, although the box-section frame is really massive for a sports car. The technical chaps say it's one of the best built cars on the road.

BOLSTER *And one of the best finished.*

SALVADORI Oh, yes. It's racing in style all right. You know, in the sports car business I run, on the Kingston By-pass, I find I sell Austin Healeys to people who'll probably never do much over eighty in their lives. What they go for is the smooth line, the attractive colours and the trimmings—leather upholstery, heater and so forth.

BOLSTER *In fact, a highly desirable motor car — all round.*

SALVADORI Yes. If you buy an Austin Healey, you're on the right line.

THE AUSTIN MOTOR COMPANY LIMITED · LONGBRIDGE · BIRMINGHAM

The Autocar

VOLUME 108 · NUMBER 3243 · 14 FEBRUARY 1958
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Every Man for Himself

WHEN, as so frequently happens, people ask our advice as to what kind of car they should buy, we always decline to give a specific answer. This is because the selection of a car is such a personal matter and too often it is bound up with unjustified prejudices, habits, prejudgment and popular misinformation.

Just as the choice of the whole new car is a matter for the individual, so is the selection of the type of transmission and gear operation, supposing there is a choice, as is frequently the case today. Public opinion seems to be going round in circles.

Take first the operation of gear boxes of the conventional kind. The column change is definitely declining in popularity, not because it is wrong or undesirable in principle, but because the provision of a light, positive and consistent change has defeated the great majority of design engineers. Most steering column gear levers become frustrating, flabby affairs before the engine is ready for its first major overhaul. Some even start life that way. We are not surprised that, for this reason alone, discerning drivers are sheering away from them again in favour of the simple, direct lever above the gear box.

Motion study experts might tell us that the column-mounted lever can be placed nearer to the hand—true enough, but it is also a matter of total movement and anatomy. Column selectors generally need to be moved about twice as far as does a rigid floor-mounted lever, and the human arm pulls and pushes, fore and aft, more easily than it lifts or presses down. On sports cars the direct lever may be arranged no more than two or three inches below the left hand in its normal position on the steering wheel.

Automatic Choice

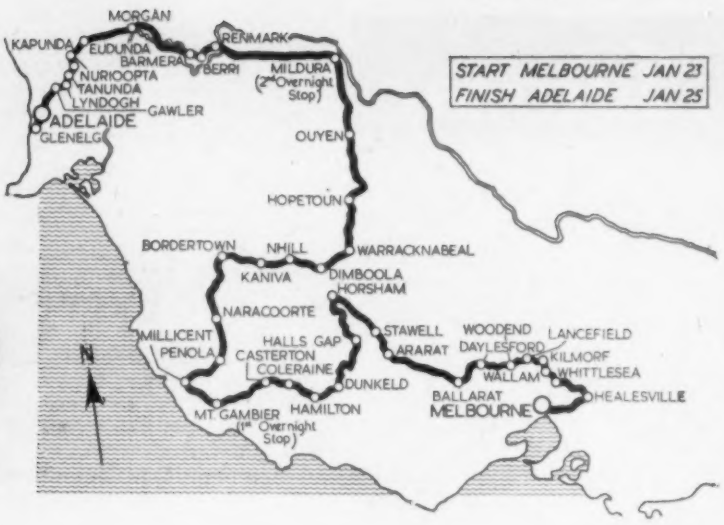
AUTOMATIC transmissions (most are more correctly called semi-automatic) are another subject which provokes violent disagreements, at least among male drivers. Some consider them an abomination on any car; others take a moderate view and approve them for some classes and sizes of car; a third group find them the answer to the driver's prayer. Certain it is that a good automatic transmission simplifies ordinary driving, regardless of the make or model of car. But, equally certain, there is a price to pay in money and, in some examples, performance.

Rather than argue these matters out on technical merits, intending purchasers would be wise if they started at the other extremity and asked themselves what driving characteristics they most need—very often there would then be little difficulty in deciding if they were automatic or hand-shift men. A number of manufacturers have developed through the years transmissions of their own—some of which meet the basic requirement well enough. Yet we do not see much future for individual, special transmissions, whether automatic or semi-automatic. Even the specialists, who have the advantage of large-scale production, have a long way to go, in conjunction with the car manufacturers, in improving efficiency, weight and cost. Reliability, generally, is high already, in spite of the justifiable laments of a few individuals.

In semi-automatic transmissions there are examples of lever and push-button override controls for all ratios. This seems to indicate that drivers are not entirely satisfied with the simple drive at Hi and Lo positions.

Motorists are not alone in wanting the best of both worlds, and happily there is no reason why, in this context, they should not have it. Technically and practically a fully automatic gear box can easily be provided with, additionally, a quick and positive manual selector for each ratio. A torque converter can also remain locked. Perhaps one day we shall see a two-way switch on the family car marked "His" and "Hers," the one position allowing selection of each gear to choice, the other, wholly automatic, two-pedal control.

BRITISH VICTORY



in the Australian Economy Run

FIRST THREE PLACES AND FOUR CLASS WINS

ALTHOUGH organized by an oil company and open, by invitation only, to members of the motor trade, the Australian Mobilgas Economy Run is still possibly one of the most useful and informative forms of motor sport for the everyday motorist.

Every car owner is interested to some degree or other in fuel consumption, and the performances registered by the cars over this year's 1,242-miles, three-day run seem phenomenal, the more so because there are few drivers who, in normal motoring, would have to maintain the high averages or carry the same payloads as those set for the 36 competing vehicles.

The event was a victory for British cars, which took first three placings and four of the six class awards. Winner was a Wolseley Six-Ninety, which not only maintained an average consumption of 34.0698 m.p.g. over the whole distance, but achieved a ton-miles-per-gallon figure of 62.9534—only 1.5528 lower than the Australian record set, under easier conditions, by the Goliath in 1955.

To ensure that no tricks were played, stringent regulations were drawn up. All cars had to be stock standard models; no modifications to carburettors other than normal tuning were permitted—jets could not be changed or altered, and tuning had to be "set so that the engine would start, run and operate in the normal manner." Tyre pressures were rigidly stipulated and checked every day by Control Board officials.

To provide parity in the results, the ton-m.p.g. formula was used, based on the multiplication of the weight of each car, plus a payload of 725 lb, by the total official distance covered (1,242 miles), the product divided by the total amount of fuel used.

This year's payload of 725 lb, made up of two drivers, two observers and additional ballast, was higher than the load set in previous runs, and doubts were raised as to whether this was fair to smaller cars. Similarly, the high average speeds of nearly 50 m.p.h. set for this year's run definitely favoured medium-sized or larger cars fitted with overdrive or very high top gear.

Winners Eric Lane and Stan Pomroy (above) receive the Warwick Vase from Sir Thomas Playford. Below: A Citroen DS19 crosses the Murray River near Renmark

Two new classes, neither competing in the sweepstakes award, were introduced for the first time—for cars with automatic transmission, won by a Jaguar Mk. VIII with 52.0372 ton-m.p.g. (24.3793 m.p.g.), and for cars crewed by women.

Although no women's crew equalled the figure set by a male crew in the same model of car, an Austin A.55 won the class with 49.6202 ton-m.p.g. (39.0275 m.p.g.) and a Morris Minor 1000 was second with 49.5322 ton-m.p.g. (47.3786 m.p.g.).

Observers this year had to check that cars observed all traffic regulations (this was not too difficult, for many of the observers were off-duty members of the Victorian Police Motor Sports Club). They had to ensure also that no car travelled any great distance without the clutch being engaged, and they had also to see that slipstreaming and other similar advantageous tricks were not practised.

As drivers were credited with time taken in hold-ups from sheep, closed level

crossings and refuelling, observers had to record the duration of all such stops to provide a check with the Control Board that drivers had not arrived late at controls, thus incurring a penalty of 0.1 ton-m.p.g. for every minute late.

In this event, and in the similar ones which preceded it in 1955 and 1956, success could not be attributed to special skill and experience of particular drivers in other branches of motor sport.

While Harry Firth, veteran trials and racing driver, achieved third outright place this year after several weeks of intensive practice with his co-driver, Russell Lane, a director of the leading Rootes distributors in Melbourne and not a sporting driver, the winning team had competed only in previous economy runs and both were representatives of a Sydney B.M.C. dealer.

Crews made up of directors, sales managers and staff from various dealers did better than the "professionals" such as Eddie Perkins and Bob Foreman, both skilled Round-Australia drivers, again at the wheel of a Volkswagen, or Doug Whiteford and Harry Russell, experts at trials driving, and Whiteford a leading racing driver.

Accurate metering of petrol was ensured by jacking up the cars to a predetermined and constant level, and filling to marks set at the beginning of the Run

First away was the Wolseley 1500 at two minutes past midnight on Thursday, 23 January; the Wolseley, and the other cars following at two-minute intervals, soon found themselves tackling a circuitous route through the Dandenong Mountains. With twelve-foot wide roads, all covered with power-fine dust and having an abundance of sudden corners, conditions were far from ideal for economic driving at an average speed of 50 m.p.h.

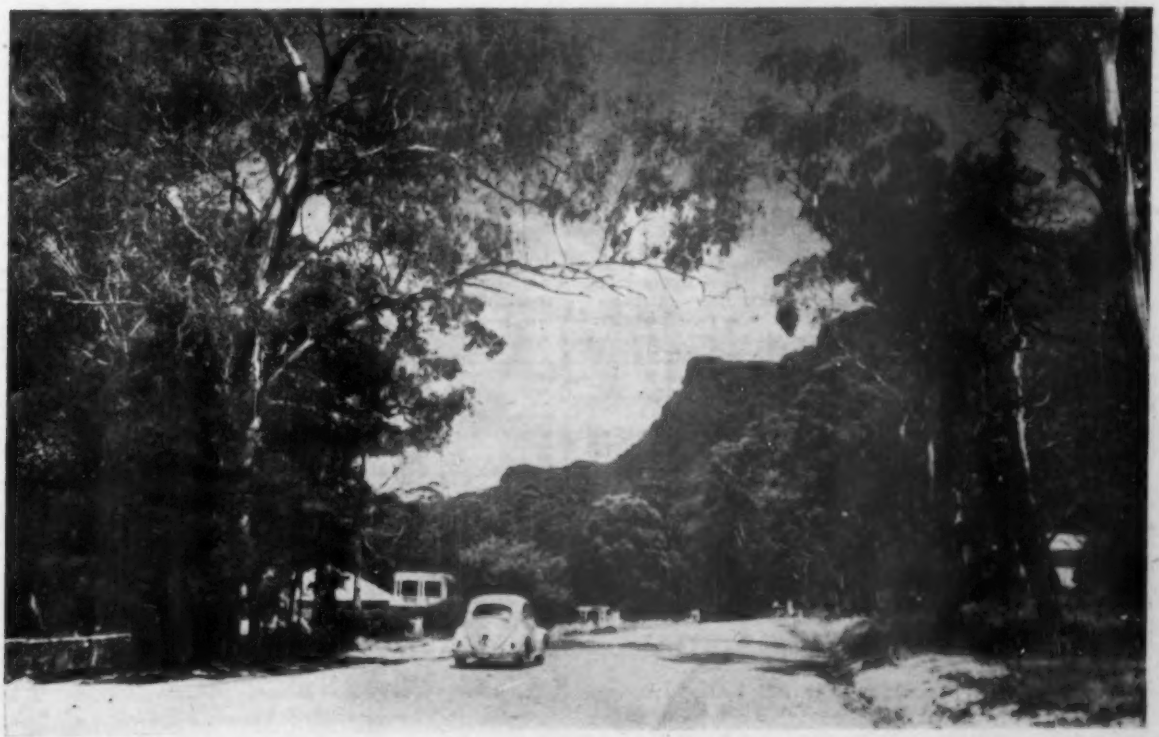
Braking—avoided as much as possible in an event of this kind—had to be used on the steep, winding down grade turns, and the hills, always tricky, involved far too many gear changes for good fuel economy. For all but the leading car—a Customline driven by Richardson and Kirwen, whose experience at Round-Australia driving gave them the lead, but very poor economy—the swirling dust at times slowed drivers almost to a crawl, and even caused one or two to take a wrong turning during the night.

The first day's run was the hardest—after a night in the Dandenongs, crews travelled north to Kyneton, then over long, undulating grades to the old gold mining town of Ballarat and then north-west to Horsham for refuelling. These roads were ideal for high speeds with little throttle, and only the lighter, low-powered cars seemed to lack urge on the long, slow up grades.

Beyond Horsham came another rough section—24 miles of winding, dusty gravel roads leading into the foothills of the Grampians, and culminating with lunch at Halls Gap, one of the most picturesque spots in this Victorian mountain resort. Drivers viewed the scenic wonders less tolerantly when they found their route winding up and down precipitous mountain sides, with third gear down grades where brakes were needed on some corners.

Eventually the mountains were left behind, and the remainder

An average of nearly 50 m.p.h. was required of competitors over the hilly and winding roads of Halls Gap, in the Grampian Mountains of Victoria



Third overall, this Humber Hawk driven by veteran trials and racing driver Harry Firth climbs between eucalyptus trees after crossing a creek

ECONOMY RUN . . .

of the first day's run was over long, straight tarmac roads where drivers were able to reach 75 m.p.h., arriving at Mt. Gambier by 3.50 p.m., after covering 521.4 miles in 13 hours 50 minutes' driving time.

Two cars had mishaps on the first day. A Vauxhall Victor's windscreen shattered when a stone was thrown up from a lorry, and about 24 miles out of Mt. Gambier, a Zephyr with a women's crew ran out of fuel. Regulations stated that anyone who ran out of fuel due to insufficient refilling (a useful payload reduction for cars with large tank capacities) would be disqualified, but chivalry and certain extenuating circumstances permitted the South Australian ladies to continue with only a minor penalty.

From Mt. Gambier, in South Australia, cars had an easy run to Mildura along wide, level tarmac roads through the Pinus Radiata forests of the South Australian forestry commission, and later through the Wimmera—the Victorian wheat country. These roads, while ideal for high averages and economic driving, were monotonous for hundreds of miles. Vast golden paddocks filled with hardy, short-stalked, drought resistant wheat, were interrupted only by occasional railway sidings dominated by huge silos. On this run, Perkins and Foreman broke the windscreen but were permitted to replace it.

By evening, after the wheat had given way to drought-stricken scrub, with huddled mobs of sheep grouped in the shade or around shallow water bores, the cars entered what seemed like an oasis of fruit orchards and vine groves. For twenty miles outside Mildura, the effects of the Murray River irrigation scheme were seen. Fruits of every type, vines and drying racks identified the sites of the important dried fruits export industry.

At Mildura unofficial progress figures indicated that the outright winner could be Kenneth Wright, winner of both previous runs in a Goliath and this year driving a Borgward; or a Wolseley 6/90 or a Citroen DS.19.

Only the final run remained, and at 5 a.m. the cars again made their way along the road running west into South Australia. This proved to be as monotonous as the previous day, with a stop at the South Australian border inspection station to check that crews were not breaking the law by taking any fruit—and possibly fruit fly and other pests—into South Australia.

After Renmark—another Murray River irrigation scheme oasis—cars veered towards the southbound road *en route* for the finish at Adelaide, the South Australian capital. On the way they detoured through the Barossa Valley, centre of the South Australian vineyards and wineries and, before long, the long, straight and level roads gave way to rolling downlands, surprisingly British in appearance, with outbuildings made from local stone and thatched roofs.

Nearing Adelaide, Saturday morning traffic held up some cars; this loss of fuel and time was a delay for which allowance was not made. By 11.30, however, an hour and a half early, the Citroen DS.19 arrived at the control in the seaside suburb of Glenelg. The Wolseley 6/90, an hour early, followed shortly afterwards and for the next two hours cars continued to arrive at the control, where they were jacked up, tanks were filled to pre-arranged marks and a team of comptometrists and typists worked on the calculations.

Sir Thomas Playford, Premier of South Australia, announced the results, and presented the Warwick Vase replica to Eric Lane and Stan Pomroy for their overall win.

JOHN GOODE.

PROVISIONAL RESULTS

		Ton M.P.G.	M.P.G.
General Classification:			
1. Wolseley 6/90 (Lane—Pomroy)		62.9534	34.0698
2. Standard Vanguard (Drake—Rydberg)		58.6322	36.5697
3. Humber Hawk (R. D. Lane—H. L. Firth)		58.5258	33.6441
Class Winners.			
Class A (Up to 1,100 c.c.): Renault Dauphine (H. Hammond—M. Lowe)		54.5062	55.0892
Class B (1,101-1,500 c.c.): Borgward (K. Wright—C. Anderson)		56.9685	39.6783
Class C (1,501-2,500 c.c.): Standard Vanguard (J. Drake—A. Rydberg)		58.6322	36.5697
Class D (Over 2,500 c.c.): Wolseley 6/90 (E. G. Lane—S. Pomroy)		62.9534	34.0698
Class E (Automatic transmissions): Jaguar Mk. VIII (M. Dunning—J. M. Cash)		52.0372	24.3793
Class F (Women drivers): Austin A.55 (Mrs. R. Cowling—Miss D. Purser)		49.6202	39.0275
OTHER RESULTS (in addition to winners shown above):			
Class A	Morris 1000	53.5964	49.3214
	Skoda 440	51.9947	42.6055
	Fiat 1100	49.8359	42.0021
	Standard Ten	47.2902	45.5758
Class B	Peugeot 403	56.5747	40.0726
	Austin A.55	52.3431	38.0906
	Simca Aronde	51.0073	43.1719
	Hillman Minx	49.7899	37.7098
	Volkswagen	47.8465	46.5114
	Wolseley 1500	45.5895	39.0266
	Ford Prefect	37.5340	37.4458
Class C	Citroen DS19	58.0787	36.1299
	Renault Frégate	52.5975	32.4576
	Riley Pathfinder	50.4356	27.0647
	Ford Consul	48.7202	33.3967
	Vauxhall Victor	46.2851	38.6862
	Holden	43.4796	31.7329
Class D	Rover 105S	53.6852	29.6104
	Morris Marshall	52.4716	31.5328
	Austin A.95	48.1574	30.8009
	Chevrolet	45.1779	24.0911
	Chrysler Royal	43.8652	23.6108
	Ford Zephyr	43.0282	28.0734
	Ford Customline	35.5585	18.5105
Class E	Austin A.105 (Automatic)	50.5049	29.6397
	Fordomatic Customline	44.8025	25.0731
Class F	Morris 1000	49.5322	47.3786
	Volkswagen	41.5962	44.4954
	Ford Zephyr	41.0087	27.4576
	Holden	40.4281	30.4193

CHOOSING A CAR—
New or Used

AN enlarged number—which will include articles to help the new motorist and those who are changing their cars.

- ★ SURVEY of the new car market.
- ★ SUMMARY of Used Car tests.
- ★ REVIEW of a special field of products and equipment.
- ★ LONG-AWAITED Road Test—the Jaguar XK150.
- ★ ILLUSTRATED report of the Amsterdam Motor Show.
- ★ ARTICLE on touring abroad.
- ★ NEWS, Sport, Disconnected Jottings, Correspondence and other regular features.

Back to Normal at Last

BEFORE 5 December 1956 the price of standard grade petrol in the inner zone was 4s 1½d; so the new price of 4s 2d resulting from Monday's welcome announcement of a ½d reduction brings us to within ½d a gallon of the pre-Suez price. The wholesale price is actually lower than before Suez, but the dealers' margin has been increased by 1d a gallon in the meantime. New inner zone price of premium is 4s 8d, and of super 4s 11½d.

Fiat Changes

A CHEAPER version of the Fiat is now available in this country; it is priced at £350 (basic), and £526 7s including purchase tax. In fact this amounts to a price reduction on the original model of the 500, and at the old price of £556 7s (including purchase tax) a de luxe version of the car is available with winding windows, upholstered rear seats, self-cancelling winking indicators, finger-tip lighting control, hooded head lamps, polished aluminium wheel discs and exterior body mouldings. The power output of both has been increased by 2 b.h.p.

Alexander Wolseley

ENGINE conversions to increase performance of the Wolseley 1500 are now available from Alexander Engineering Co., Ltd., Haddenham, Bucks. There are two stages of tune of which both have completely different cylinder heads, with compression ratio raised to 8.8 to 1, twin S.U. carburettors, modified exhaust manifold and special valve springs. A complete set of parts for stage one tuning costs £43, and for stage two £58; there is a fitting charge if installed at the works. A 4.2 to 1 axle conversion is an optional extra with the stage two modification.

Alfa-Romeo Prices Cut

TOTAL price reductions ranging from £45 to £300 have been made by Alfa-Romeo. The new prices (with old ones in brackets) of the five leading models of the range are given below.

	Basic Price		Total Price		
	£	£	£	s	£
1300 Giulietta	1,278	(1,320)	1,918	7	(1,981)
1300 Giulietta TI	1,395	(1,460)	2,093	17	(2,191)
1300 Giulietta Spider	1,498	(1,565)	2,248	7	(2,349)
1300 Giulietta Sprint coupé	1,575	(1,635)	2,363	17	(2,454)
1300 Giulietta Veloce coupé	1,848	(1,945)	2,773	7	(2,919)

Flash

PHOTOGRAPHIC caption received from Washington reads: "George Romney, president of American Motors Corporation, today urged Congress to break up General Motors and Ford into smaller companies and split the bargaining forces of the United Auto Workers. He told a Senate Anti-trust Sub-committee 'such action is needed to halt another block-buster chain reaction wage-price spiral across industrial America'." In the picture were Alexander Wiley (Republican, Wisconsin), George Romney and Estes Kefauver (Democrat, Tennessee).

WESTMINSTER COMMENTARY

Parking Meters On the Way. Now that the Minister of Transport has authorized a pilot parking meter scheme for Westminster, the meters may be expected to start appearing on the streets within about three months. The experiment will cover a small area comprising Park Lane and Oxford Street, as far south as the southern boundary of Grosvenor Square. Four miles of Westminster streets are involved, and it is intended to provide bays for 658 cars within the area. Previously surveys had shown that an average of 1,315 cars were parked on these streets, so that about half will now have to seek alternative parking space. Annual expenditure on this scheme is estimated at between £15,000 and £16,000 against an anticipated £33,000 from the meters.

There are still many grave doubts about the usefulness of parking meters in London. and the view of the Standing Joint Committee of the A.A., R.A.C. and R.S.A.C. that "any London experiment with parking meters will be premature until off-street parking facilities have been provided in the area" cannot lightly be ignored. It is to be hoped that the Ministry will use the interval before the Westminster plan is put into operation to give serious study to the possible application of the Paris *zone bleu* system as an alternative to the use of meters. This has been examined by Mr. Nugent, and the French have shown that it effectively prevents long-term parking without involving the motorist—or the authorities for that matter—in any expense.

Irish Driving Licences. The Government have agreed that there is a case for reciprocal recognition of driving tests with Northern Ireland. At present, Ulstermen who move to the U.K. are required to take another driving test.

DE LUXE VERSION of the Grosvenor Grafton personnel carrier, converted from the Bedford light van, is now in production by the Grosvenor Carriage Co., Ltd., Welbeck Works, Kimberley Road, London, N.W.6. Dual colour schemes are standard, and there are bigger side windows. Because it seats 12 persons there is no purchase tax on this vehicle; the price is £617 15s

A SLIDING GLASS division is now available for fitting to the Morris Oxford II. It is marketed by C. G. Norman (Victoria), Ltd., London, and the cost, including an additional heater, is "less than £50"

INTRODUCED in Vienna this police box is mounted on wheels and is telescopic. It can be used at normal height (above) or fully extended for better visibility (right)

News and Views

Engineers Dine

IN spite of the snow and ice that gripped much of the Midlands and the North last Friday, there were few empty chairs that evening at the annual dinner and dance of the Automobile Division of the Institution of Mechanical Engineers at the Dorchester Hotel, London. A famous designer who is a vice-chairman of the division failed to arrive; it was reported that by the time he had changed to snow tyres he found he was running too late! As usual, it was a very representative gathering of the men who are the engineering brains behind the British motor industry and, also as usual, it proved a most enjoyable evening.

R.A.C. Awards

SINCE 1906, except for gaps caused by wars and similar distractions, the Royal Automobile Club has awarded the Dewar Trophy for the "most outstanding technical and engineering achievement in British automobilism." This massive and handsome piece of silverware can, in fact, be regarded as the industry's annual challenge trophy which, formerly on the results of R.A.C.-certified trials, and latterly after deliberation within the R.A.C. itself, is awarded for the year to the firm that has proved itself outstanding in one way or another.

It is not awarded regularly; in fact it was after a lapse of 20 years that in 1950 the Rover company received the Trophy in recognition of its turbocar developments. The award has not been made since 1952.

For 1957, the Trophy goes to the Dunlop Rubber Company for its "outstanding contribution in the field of automobilism, with particular reference to the company's work on disc brakes which has contributed to the success of British cars in all fields." Another factor which has gained Dunlop the award is its research and development of special tyres for the M.G. in which Stirling Moss and Phil Hill secured various International Class F records at Bonneville Flats, Utah.

Also awarded annually by the R.A.C. is the Sir Malcolm Campbell Memorial Trophy, which goes to the British competitor achieving the most outstanding performance in a British car in any motoring competition. The Trophy for 1957 has been awarded to Stirling Moss for his victory, driving a Vanwall, in the Pescara Grand Prix last year.

VICTOR RILEY—A TRIBUTE

WITH regret the death is recorded of Mr. William Victor Riley, son of Mr. William Riley, who founded the Riley Motor Company at Coventry in 1898. His death occurred last Sunday, and the funeral is being held at Stow-on-the-Wold at 2 p.m. today. He was 82. Mr. C. E. Wallis, chairman of Iliffe and Sons Ltd., has written this personal tribute:

IT WAS WITH very great sorrow that I heard of the death last Sunday of my old friend, Victor Riley—a friendship I have been privileged to enjoy for something over 40 years.

He was one of the pioneers of the motor industry, and to me and to thousands of enthusiastic Riley owners he will always be associated with the car that bears his name and to which, with the assistance of his brother and an enthusiastic team, he gave such individuality, personality and even glamour in the years between the two world wars. He had a most devoted and loyal staff, to whom he was affectionately known as "V. R.," and he had the distinction, as a motor car manufacturer, of being personally known through his presidency of the Riley Motor Club to many hundreds of private owners of Riley cars, all of whom regarded him as a friend who was ever ready to advise and to help them to get the maximum enjoyment and satisfaction out of their cars.

Although he retired from the managing directorship of the Riley Motor Company in 1947, he remained president of the Riley Motor Club until his death, and the success through the years of that Club and its numerous rallies, competitions, dinners and dances, was in no small measure due to his energy and the delightful way in which he presided over so many events and functions.

Apart from motor cars and the Riley Motor Club, his great hobby was fishing, and when the Mayfly was up it was sometimes very difficult to track him down.

He married, somewhat late in his life, Miss Dorothy Champney, who for many years had been an enthusiastic supporter of the Riley Motor Club and winner of many cups and trophies. All who knew them in their happy married life will feel the deepest sympathy for her and their two children, Victor and Victoria.

Victor Riley's passing is the breaking of another link with the earliest days of the motor industry, and his many hundreds of friends will mourn the death of a dear friend with a deep sense of sorrow and personal loss.

Frisky in Production

PRE-PRODUCTION and planning stages for the development of the Meadows Frisky have now been completed, and commercial production of these cars—the Frisky and the Frisky-sport—has started at the Park Lane Works, Wolverhampton. The Flower Group in the Middle East, which has this year celebrated its 50th anniversary, has acquired a controlling interest in the company, and Mr. Raymond Flower has been appointed chairman and managing director. Mr. Neville Flower has also joined the board.

Iron Rations

EMERGENCY food packs for 24 hours are being carried by A.A. patrols on exposed roads in the north of England and in Scotland, for use by drivers and passengers of cars which may become stranded for long periods in sudden bad weather. The food packs, which have petrol heating units and cooking containers, hold sufficient food to provide two hot meals and a snack, and they have a storage life of two years.

Accessories

New Make of Tyres

THOUGH well known in the U.S.A. Kelly-Springfield tyres are new to this country. Manufacture has just begun, and there are all the normal car sizes, tubed or tubeless, with black or white walls.

The company's Celebrity tyres have circumferential, continuous narrow bands —one at each edge, and two in the centre, with a groove between. These enclose two wider bands which are made up of numerous closely fitting studs; such bands give a continuous running surface in normal work, but if there is fast cornering, smart acceleration or braking, limited tilting of the studs accentuates the grip of the many edges.

Other interesting points of the tread design are the perfectly plain outside edges; and sensible rubbing strips protecting the walls from kerb damage.

Prices are those ruling for other makes of tyre in the United Kingdom. The company's headquarters is Kelly-Springfield Tyre Co., Ltd., 1-3, Redhill Street, London, N.W.1.

Bosch Horns

MADE by Robert Bosch G.m.b.H., the German company, the Fanfare twin horn set is available in this country from garages. It costs £7 in black finish, or £7 18s with aluminium-coloured housing, chromium-plated grille, and ornamental hinge. There is a relay switch. The sound is stated on behalf of the makers to be "a combination of two different tones, a low one and a high one, in harmony, producing a pleasant note which warns without startling."

For Electrical Maintenance

OWNER-DRIVERS who fight shy of the electrical systems of their cars because of their lack of suitable testing gear and of the knowledge of how to use it, will welcome a new meter called the Detektrolex dynamo and charge circuit fault indicator. It is, in effect, a sensitive voltmeter, but is made of particular value to motorists by the annotations which supplement the usual calibrations. It is available for 6- or 12-volt systems. The 12-volt meter examined was tested against a master voltmeter, and found accurate.

Maximum reading is 30 volts, and at suitable points on the scale, indications such as short circuit, open circuit, starter load, normal cut-in and high resistance are marked. Used in conjunction with the very detailed instructions which accompany it, the meter gives early indication of any drop in the efficiency of the main electrical components of a car, and the instruction leaflet tells how to remedy the trouble. It is especially of value in a car which is not fitted with an ammeter.

Produced by Ward's Electrical Service, Westergate, near Chichester, Sussex, the Detektrolex meter alone costs £1 10s; it is available for setting in the facia, with a clip for fixing to the steering column, or a bracket for attachment to the lower edge of the facia; the complete outfit, with cable, costs £1 17s 8d, including postage.

Cleaning White-walls

WHEN Brillo metal-wool, soap-impregnated cleaning pads for white-wall tyres were introduced, our tests proved that they were excellent in removing the obstinate stains on white-walled tyres which resisted normal washing. A new package has four large "Jumbo" pads, and costs 3s. The makers are Brillo Manufacturing Co., Ltd., North Circular Road, London, N.W.10.

Safe Cork

IN a car, a vacuum flask may wander. The new Vacco Master VMS has a polythene screw-in stopper which stays firmly in place if the flask is shaken or bumped. It also avoids the need for waxed paper round a cork, and the rim has a proper lip for pouring. Vacco, Ltd., Grosvenor Gardens House, Grosvenor Gardens, London, S.W.1, are the makers, and the price is 7s 6d.

Blanking Radiators

THE radiator and grille blanking plate on a car was observed to be thick and highly polished aluminium foil. It stays in place because it tends to shape itself to the bars of the grille, but the edges were secured with small wedges of cork. It has proved strong enough to resist wind pressure, and looks smarter than other temporary substitutes for tailored muffs or blinds.

The owner said the foil was that of Mirap, Ltd., 40, Bedford Square, London, W.C.1. A large roll of 1ft width is 2s 6d. It is sold by household stores for wrapping joints and birds for roasting, or as a picnic wrapping!

Screen Washer

A WINDSCREEN washer is introduced by Wingard (M.A.), Ltd., Chichester, Sussex, at £1 5s. The glass reservoir, 3¼in diameter and 6½in high, is compact, and its spring-clip bracket easily fitted with self-tapping screws. Plastic tubing connects it to the facia plunger—a sealed unit with an ivory-plastic button and plated securing nut. It could be fitted in any facia panel up to ¼in thick.

The screen spraying nozzle, which has two apertures, is of black tough plastic, or perhaps synthetic rubber.

In general, this simple but effective washer is well made, and careful examination revealed no point liable to rust, corrode or leak.

The Vacco screw stopper and pouring lip; Wingard's screen washer; and the new jumbo size of Brillo white-tyre cleaning pads

More grip—the new Kelly-Springfield Celebrity tyre now made in Great Britain

A matched pair of Bosch Fanfare horns

The Detektrolex fault meter, mounted in a steering column bracket

Rover T3

GAS TURBINE CAR

110 B.H.P. : FOUR WHEEL DRIVE : DE DION REAR SUSPENSION

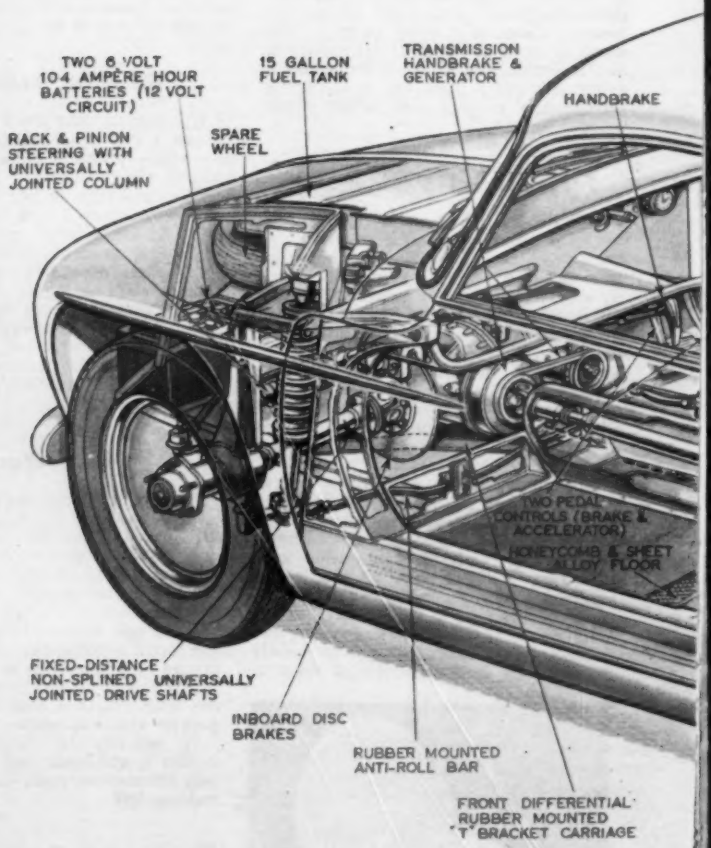
TODAY His Royal Highness the Duke of Edinburgh is visiting the works of the Rover Company at Solihull, Birmingham. His keen interest in everything scientific, and in particular, in significant engineering development, is well known. We have little doubt that in addition to examining the Rover T3 experimental gas turbine car, he will join the select small band of drivers who have been permitted to handle the car. This important occasion adds particular interest to the description below—the first fully illustrated analysis of the T3.

Instrumentation is simple, with four matching circular dials. Most important are the rev counter, calibrated to 60,000 r.p.m., and the gauge to indicate exhaust temperature, which must not exceed 580 deg C

SEVERAL gas turbine-powered cars have been built in recent years, some exotic prototypes, others special test or record-breaking designs, but very few of them have been practical, roadable vehicles. The Rover Company pioneered the gas turbine car, and from the start its experimental designs have been conventional cars which could be operated on the public roads. Jet 1, announced as long ago as March, 1950, was a normal open touring car, neatly adapted to take gas turbine power.

T3, now described in its latest form, was first shown at the London Motor Show in 1956. It has a two-seat, sports coupé body, and the chassis was designed specifically for the gas turbine engine. As with Jet 1, the power section is installed in the tail. The Rover Company is careful to state that the development of this model

(Above) Between the seats is the forward and reverse selector. The brake pedal is very wide to permit left foot braking. (Below) The engine compartment is heavily insulated with sprayed asbestos. When this picture was taken experiments were being made on heat losses from the heat exchanger, hence the temporary aluminium foil insulation


TWO 6 VOLT 104 AMPÈRE HOUR BATTERIES (12 VOLT CIRCUIT)
15 GALLON FUEL TANK
TRANSMISSION HANDBRAKE & GENERATOR
HANDBRAKE
RACK & PINION STEERING WITH UNIVERSALLY JOINTED COLUMN
SPARE WHEEL
TWO PEDAL CONTROLS (BRAKE & ACCELERATOR)
HONEYCOMB & SHEET ALLOY FLOOR
FIXED-DISTANCE NON-SPLINED UNIVERSALLY JOINTED DRIVE SHAFTS
INBOARD DISC BRAKES
RUBBER MOUNTED ANTI-ROLL BAR
FRONT DIFFERENTIAL RUBBER MOUNTED 'T' BRACKET CARRIAGE

Tractable in normal road use, the T3 has a coupé body; beneath the rather pronounced deck are the turbine and heat exchanger

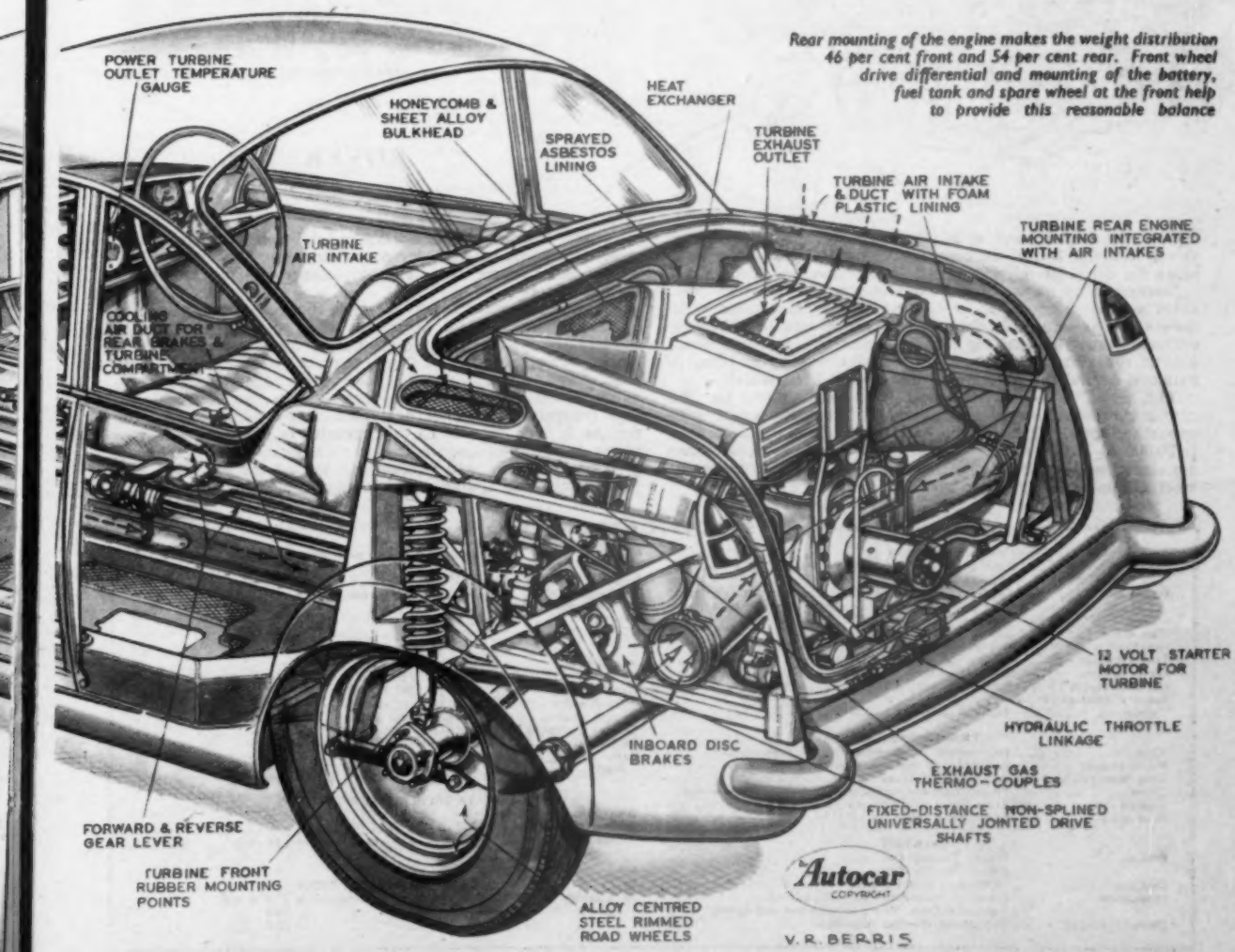
does not indicate that the marketing of turbine cars is near. It does indicate, however, that the company is carrying on an intensive programme, and when the results of this show that costs and efficiencies can be comparable with those for contemporary piston engines, its announcement of a British gas turbine car for sale to the public will certainly not lag behind that of any home or foreign competitor.

Apart from its turbine engine, the T3 incorporates many advanced engineering features. Among the main items of its specification are four-wheel drive, inboard disc brakes front and rear, and a glass-reinforced polyester-resin body. The power unit is rear-mounted; in this position it is possible to isolate from the passengers the high-pitched whine of the turbines, and it is easier to dispose of the large volume of exhaust gases.

A full description of the turbine was given in *The Autocar* of 15 March 1957. It is a two-shaft design with free power turbine, and develops 110 b.h.p. at 52,000 r.p.m. of the compressor. There are three main sections of the unit. In the centre is the gasifier, which comprises the single-stage, single-sided centrifugal compressor of 6.50in dia., the turbine (6.66in tip dia.) which drives the compressor on a common shaft, and the combustion chamber.

At the front end, as installed in the car, is the power turbine mounted on a separate shaft, with its transmission gearing. This turbine is propelled by the energy remaining in the hot gases after they have driven the compressor turbine. From the reduction gearing on the end of the power turbine the drive is taken to the wheels. The third section of the unit is the intake

Rear mounting of the engine makes the weight distribution 46 per cent front and 54 per cent rear. Front wheel drive differential and mounting of the battery, fuel tank and spare wheel at the front help to provide this reasonable balance


POWER TURBINE OUTLET TEMPERATURE GAUGE
HONEYCOMB & SHEET ALLOY BULKHEAD
SPRAYED ASBESTOS LINING
HEAT EXCHANGER
TURBINE EXHAUST OUTLET
TURBINE AIR INTAKE & DUCT WITH FOAM PLASTIC LINING
TURBINE REAR ENGINE MOUNTING INTEGRATED WITH AIR INTAKES
TURBINE AIR INTAKE
COOLING AIR DUCT FOR REAR BRAKES & TURBINE COMPARTMENT
12 VOLT STARTER MOTOR FOR TURBINE
HYDRAULIC THROTTLE LINKAGE
INBOARD DISC BRAKES
EXHAUST GAS THERMO-COUPLES
FIXED-DISTANCE NON-SPLINED UNIVERSALLY JOINTED DRIVE SHAFTS
FORWARD & REVERSE GEAR LEVER
TURBINE FRONT RUBBER MOUNTING POINTS
ALLOY CENTRED STEEL RIMMED ROAD WHEELS
Autocar
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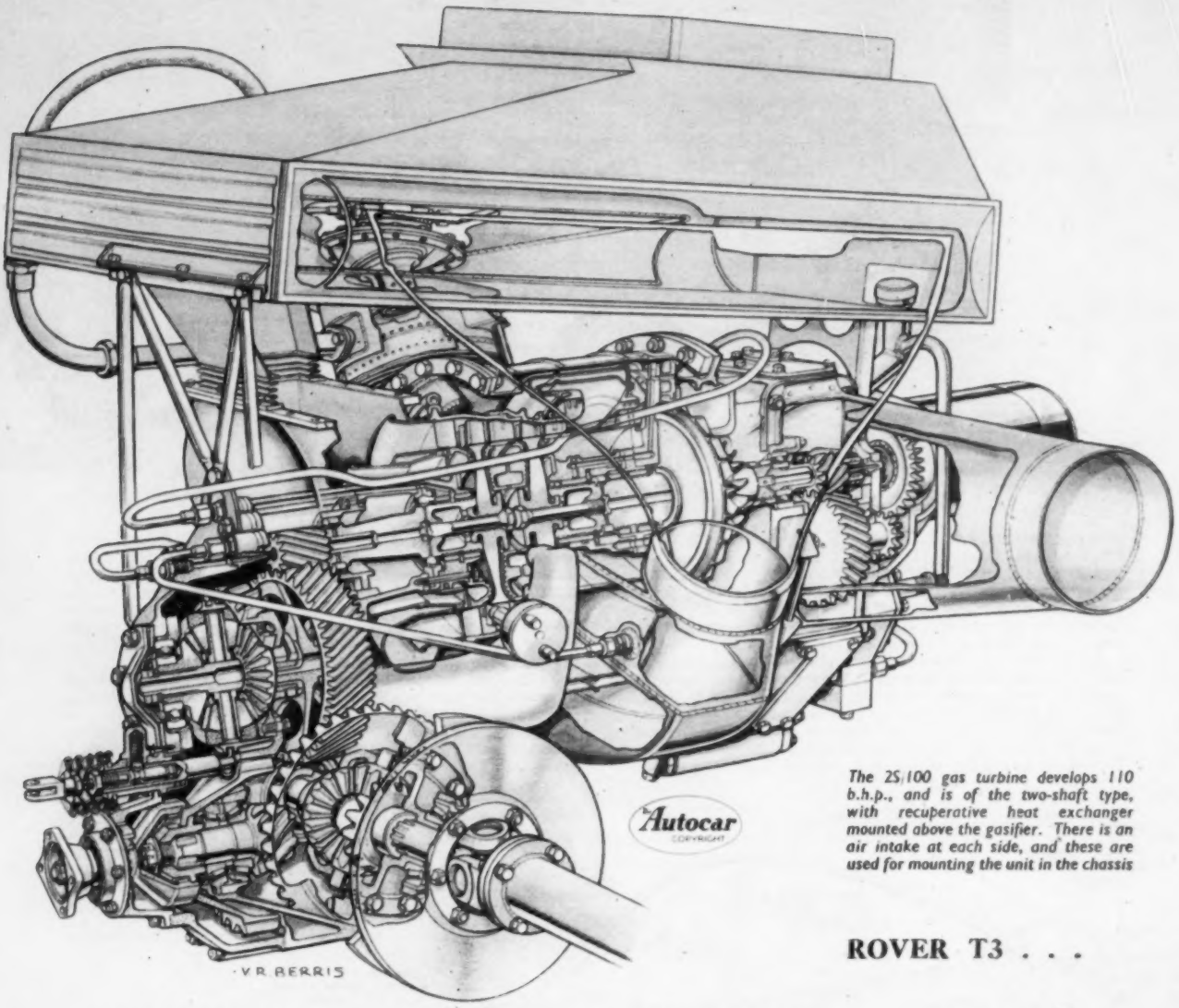


The 2S/100 gas turbine develops 110 b.h.p., and is of the two-shaft type, with recuperative heat exchanger mounted above the gasifier. There is an air intake at each side, and these are used for mounting the unit in the chassis

ROVER T3 . . .

end of the engine, and it incorporates the auxiliary gearing driven from the end of the compressor shaft. This section provides the drive for oil pump, fuel pump, governor and starter.

Starting is by means of a 12-volt electric motor which provides assistance up to 15,000 r.p.m. of the compressor. To reduce inertia effects in the gasifier section and so minimize undesirable acceleration lag, the generator is belt-driven from behind the drum-type transmission brake which, in turn, is mounted behind the differential unit for the front wheels.

The problems of unfavourable fuel consumption for the turbine are well-known, particularly at the tick-over or self-sustaining speed which, in the case of the 2S/100 Rover unit, is 20,000 to 25,000 r.p.m. Turbine and compressor efficiencies are considerably reduced at their lower speeds, but development work is proceeding on these problems.

Variable area on turbine nozzles and diffusers would overcome these difficulties, but they are more expensive and might introduce another source of air and gas leakage, possibly leading to loss of efficiency.

The most practical step to improve fuel consumption is to fit a heat exchanger, which utilizes the heat of the exhaust gas to raise the temperature of the air after it leaves the compressor. An important advantage is that it reduces the optimum pressure ratio of the engine, so that a single-stage centrifugal compressor, as in the Rover, can be used—with obvious cost advantages.

A recuperative type of heat exchanger mounted above the turbine is used for the T3. It operates in the same way as a water tube boiler except that the compressed air is passed through the tubes, and exhaust gas around the outside. This type is relatively simple to manufacture and has inherently low

SPECIFICATION

ENGINE

Type	Two shaft gas turbine with recuperative heat exchanger
Stages	Single stage centrifugal compressor, single stage axial compressor turbine and single stage axial power turbine
Max. B.H.P.	110 at 52,000 compressor r.p.m.
Fuel System	Rover piston pump and mechanical governor
Tank Capacity	15 Imp. gallons (68.1 litres)
Sump capacity	7 pints (3.8 litres)
Oil filter (type)	Purolator (full flow)
Battery (voltage & capacity)	12v 108 amp. hr.

TRANSMISSION

Type	Four wheel drive with overrun free-wheel
No. of speeds	Forward and reverse (same ratio)
Gear lever position	Between front seats
Drive	Power turbine connected mechanically to wheels
Overall ratio	From power turbine to wheels 28.922 to 1
Final drive	Spiral bevel gear 3.9 to 1

CHASSIS

Brakes	Front: Dunlop disc Rear: Dunlop disc
Disc size	10.0in dia., 2¼in dia. pads
Suspension	Front—Independent by coil springs Rear—De Dion. Watts linkage and coil spring
Dampers (type)	Woodhead Monroe telescopic
Wheels	Steel rims, light alloy centres
Tyre size	5.90—15in
Steering (type)	Rack and pinion
Steering wheel	Two spoke, 16in dia.
No. of turns (lock to lock)	2¼

DIMENSIONS

Wheel base	7ft 10in (238.76 cm)
Track	Front 4ft 0½in (122.6 cm). Rear 4ft 0½in (123.2 cm)
Overall length	12ft 5½in (380.36 cm)
Overall width	4ft 11½in (150.49 cm)
Overall height	4ft 5in (134.62 cm)
Ground clearance	6½in (15.56 cm)
Turning circle	39ft (11.89 m) (L and R)
Kerb weight (5 galls fuel)	18¾ cwt (2086 lb) (911 kg)

PERFORMANCE DATA

Brake surface area swept by pads	880 sq in
Weight distribution (in running condition)	Front 46 per cent; Rear 54 per cent

FUEL CONSUMPTION

At a steady speed of 40	m.p.h. fuel consumption is 13.8 m.p.g.
" " " " " 60	" " " " 14.3 "
" " " " " 80	" " " " 12.8 "

pressure losses, although it tends to be large for a given efficiency.

Weight of the complete turbine installation, including compressor, heat exchanger, combustion chamber, the two turbines, reduction gear, differential and inboard disc brakes, is 450lb; of this the heat exchanger accounts for 115lb. This total weight compares favourably with that of a piston engine developing 110 b.h.p., with automatic transmission and back axle. This is a fair basis of comparison, for a turbine is an effective torque convertor and does not require a stepped transmission as does a piston engine, merely using a straightforward, constantly engaged system of reduction gears.

Four-wheel drive is regarded by the Rover engineers as an important and desirable feature for a turbine car; it reduces the possibility of wheel spin and consequent skidding when the turbine develops full torque. Throttle response is not immediate with a turbine; there is a noticeable lag after depressing the throttle pedal which is linked to the fuel feed system, and its operation controls the amount of fuel fed in. In other words, a turbine works on unthrottled air as does the diesel engine, and its speed is controlled by the amount of fuel injected into the combustion chambers. This lag makes it difficult for the driver to exercise sensitive control through the accelerator, and the extra traction of four driving wheels is an advantage.

From the end of the turbine shaft the reduction gear is arranged in three stages. The first is a helical pinion and gear; in tandem with this is the second stage of reduction; and there is a final reduction by bevel and crown wheel to the driving wheels, providing a total overall ratio of 28.92 to 1.

A turbine requires no clutch, but some means of obtaining reverse is necessary. This is achieved by a sliding dog arrangement, in conjunction with a bevel differential mounted behind the gear cluster of the second motion shaft in the reduction train. Forward and reverse must be selected with the car stationary, and there is a change speed lever with an up and down movement, situated between the bucket seats.

Drive to the rear wheels is through a normal differential attached to the crown wheel on the third motion shaft. From the forward end of the bevel pinion shaft in this assembly, the drive is taken to the front wheels through a two-piece propeller shaft incorporating a centre bearing which has a flexible mounting to eliminate whirling vibrations.

At the forward end of this prop shaft is another chassis-mounted bevel and crown wheel unit. The running gear is identical with the one for the rear wheel drive, and incorporates a differential for the driven front wheels. Between the differential assemblies for the front and rear wheels is interposed a freewheel which allows the front wheels to overrun the rear as required. From each differential assembly the drive to the wheels is taken through a drive shaft having a single Hookes joint at each end. These shafts act also as suspension members, controlling the lateral movement of the wheel; they are of the fixed-distance type, dispensing with the normal splined joint.

Dunlop disc brakes are used at front and rear. They are mounted inboard, with the 10in dia. discs attached to the flange of each wheel drive shaft universal joint.

Front suspension has a basic wishbone layout, but there are some unusual features. Each upper arm is of box section, fabricated from sheet steel and mounted high up on the superstructure section of the chassis frame which forms the scuttle. By this wide spacing, bearing loads are kept low, reducing friction and consequent stiffness. The king pin post also is fabricated from sheet steel, and contains two opposed taper roller wheel bearings; at the top is a trunnion type swivel joint, and a ball joint attached to the end of a transverse anti-roll bar forms the lower pivot bearing. Also secured to this anti-roll bar are the lower ends of the combined telescopic dampers and coil spring suspension units. Thus the lower wishbone is formed, in effect, by the wheel driving shaft and anti-roll bar. With inboard disc brakes, front suspension members are not subjected to braking torque.

Steering is by rack and pinion, a universally jointed shaft running diagonally from the rack to the steering wheel. From the rack there is a short track rod at each side, connecting to a forward-mounted steering arm attached to the king pin post. The bolt-on wheels have alloy centres riveted to steel rims.

At the rear, the wheel drive shafts locate the wheels transversely, and fore and aft location is by a Watts linkage at the hubs. This layout results in a slight variation of track, which is accommodated in a sliding joint in the de Dion tube which passes underneath the air entry end of the turbine. Combined telescopic dampers and coil springs duplicate those at the front.

Box-section members are used for the main structural part of the chassis frame. The side members are swept out to full body width, and at each end there is a superstructure of square section tubes for the front scuttle and engine bay respectively. Connecting the front and rear bulkheads is a central floor tunnel to provide beam stiffness, and it also acts as a conduit for supplying cooling air to the rear brakes and turbine compartment.

The glass fibre body is notable for its large window area and thin pillars. The front grille is a concession to tradition, and has no function

Frame stiffness is enhanced by adapting current aircraft practice for the floor; this consists of light alloy honeycomb, bonded to and sandwiched between two light alloy sheets. At the attachment points of the frame, the honeycomb section is flattened locally and pop-riveted to the frame side and cross members. This construction results in a clean under-pan, with good insulating properties, having a high stiffness to weight ratio.

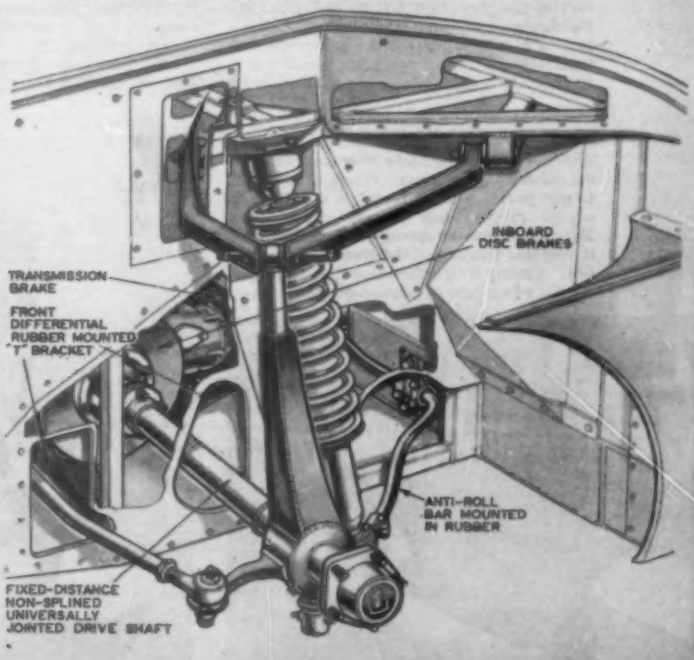
Polyester resin reinforced with glass fibre is used for the body; local steel-reinforcing structural members are moulded in for such items as the screen and door pillars. Noticeably thin sections for the pillars have been achieved, and the occupants are well insulated from road and engine noise.

A turbine car requires a change in driving technique from the conventional. Because throttle response is slower, the point of acceleration must be anticipated, and the brakes are required to do more work as there is no braking from the power unit. The T3 has extremely good cornering ability, and the problems of four-wheel drive appear to have been overcome very successfully.

From a standing start the car will reach 60 m.p.h. in 10.5sec and 80 m.p.h. in 18sec. To achieve these figures it is necessary to apply the brakes while the turbine is speeded up, but no harm results from this technique. Absolute maximum speed has not yet been attempted, but the car has lapped the high-speed track at M.I.R.A. at 102 m.p.h. without using its full potential. Fuel consumption figures at steady speeds of 40, 60 and 80 m.p.h. are 13.8, 14.3 and 12.8 m.p.g. respectively; one can deduce that average road fuel consumption would be about 10-12 m.p.g.

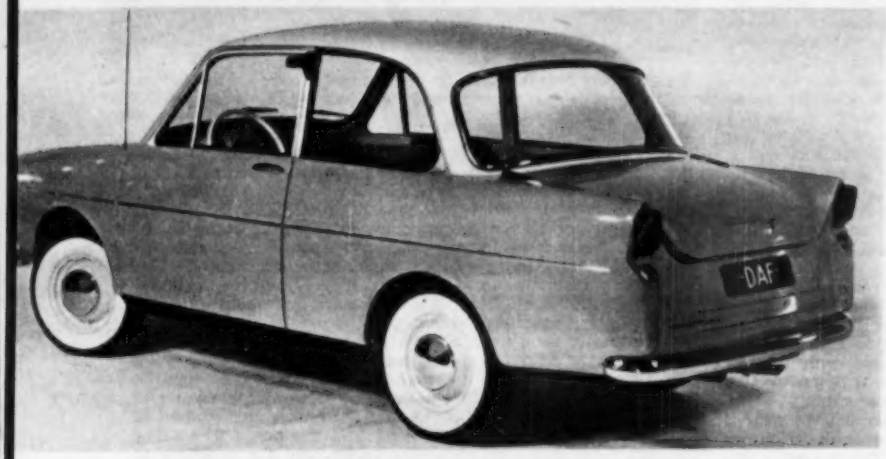
It is not possible to forecast when the Rover Company's research programme will result in a turbine-driven road vehicle being offered for sale; that the engineering policy of the company is sufficiently enlightened for it to proceed with this work must be applauded, for it will ensure that Great Britain will retain her lead in this field.

Front suspension layout showing the drive shafts and inboard disc brakes attached to the differential. The drive shafts locate the wheels transversely; double Hooke joints for the steered wheels are not used


INBOARD DISC BRAKES
TRANSMISSION BRAKE
FRONT DIFFERENTIAL RUBBER MOUNTED "T" BRACKET
ANTI-ROLL BAR MOUNTED IN RUBBER
FIXED-DISTANCE NON-SPLINED UNIVERSALLY JOINTED DRIVE SHAFT

D.A.F. from Eindhoven

New 590 c.c. Dutch Car Has Belt-Driven Fully Automatic Transmission : Greasing Points Eliminated



Styling features of the D.A.F. include a through waistline, and sloping bonnet for good forward visibility. Well balanced appearance in such a small vehicle is noteworthy. Luggage space of 12½ cu ft capacity is provided in the tail, which has an external lid

THE Dutch truck and trailer factory D.A.F., at Eindhoven, introduced their long-discussed four-passenger economy car at the Amsterdam Motor Show, which opened yesterday. D.A.F., founded by the two van Doorne brothers Huub and Wim, who both started their careers in their father's blacksmith shop, expanded after the war from a big trailer building enterprise to a very successful truck factory. Recently they opened a new plant for the building of British Leyland engines under licence.

It has long been a dream of the technical Huub van Doorne to create a small, all-Dutch passenger car, and the realization of this ambition was helped along by the newly developing possibilities of Benelux as a sales outlet, and the opening of frontiers to the coming Euromarket. Economic conditions — the Dutch Government last year suspended their tremendous roadbuilding programme—hastened the development of the D.A.F car, because this Government move caused a dwindling of the company's truck sales.

The new D.A.F. car seems to be a well-designed proposition for the small car market. In more than one way it is unconventional, but the outside appearance, with high windows, sloping bonnet and front slightly lower than the tail keeps up with current trends in body design. It is not a small car in the true sense of the word; the interior is roomy enough to accommodate comfortably four sturdily built Dutchmen, and the luggage compartment is equally well suited to a family transporter.

One revolutionary new idea incorporated in the D.A.F. is that the car has no lubrication points at all; the only maintenance required is to replenish the petrol tank and to change the engine oil once in a while—for the rest, the car needs no regular servicing.

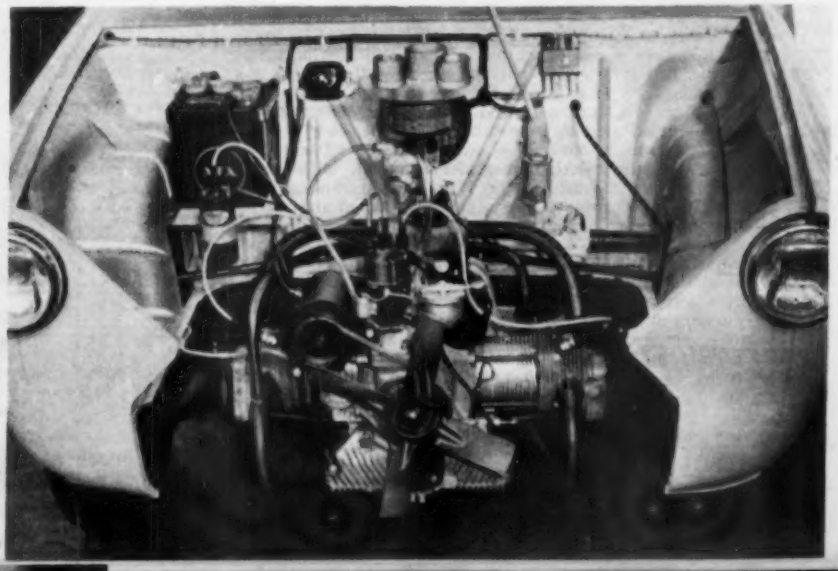
More important, however, than this very thoughtful provision (helped by using the front telescopic dampers as kingpin swivels) is the fully automatic transmission, which is basically a variation and improvement on a well-known theme. In principle this Variomatic transmission consists of two V-belts running on pulleys of variable diameter, and it provides a progressively changeable reduction ratio between 4.4 to 1 and 20 to 1.

Each of the pulleys consists of two conically shaped halves, one of which can slide sideways along a splined axle. The application of V-belts to transmission is not in itself very new—in fact, they are found in almost every industry; the V-belts used in the Variomatic, however, are "cogged" on the inside, which improves side grip and extends their life by increasing flexibility.

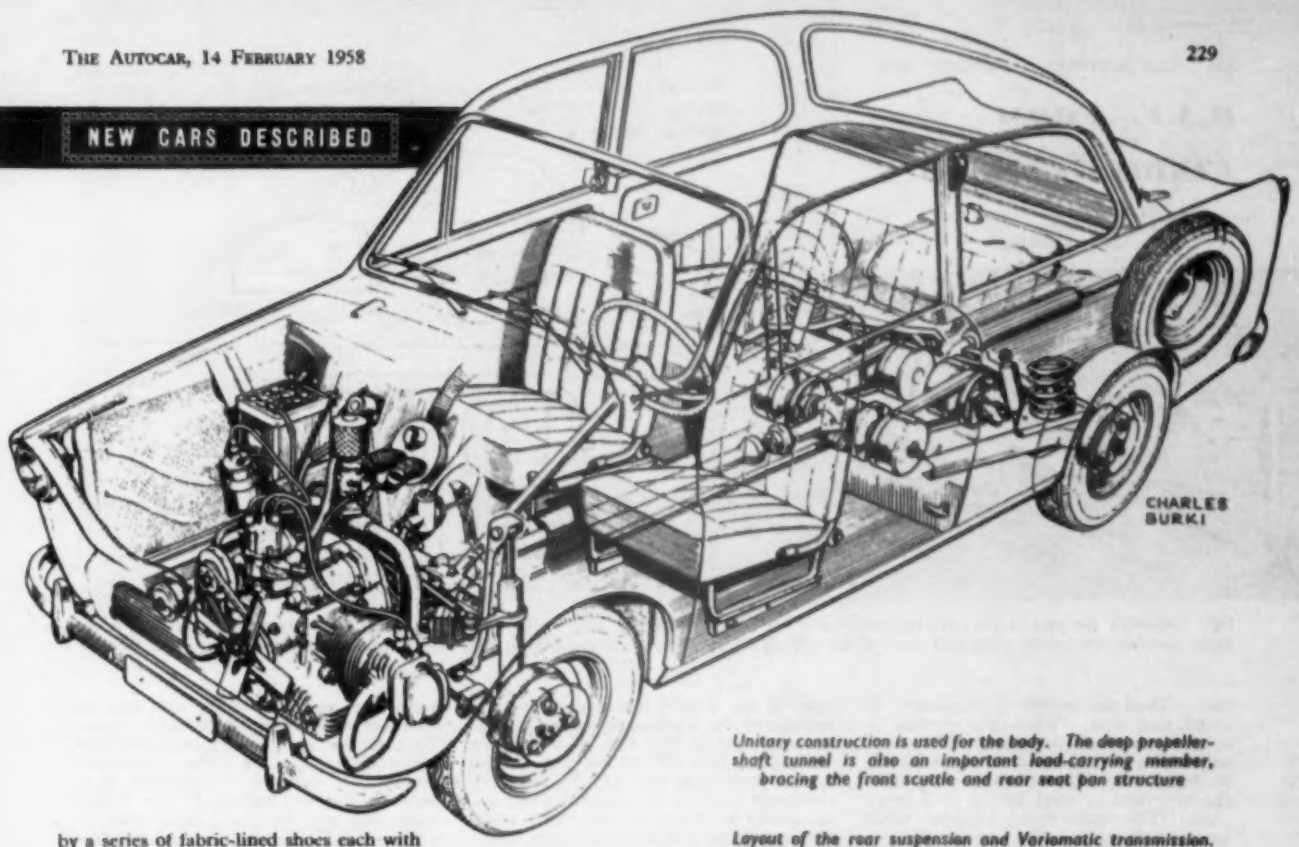
Both front pulleys of the Variomatic are driven by the engine, through a centrifugal friction clutch, a short transmission shaft and a conventional crown wheel and pinion; in fact, there are two crown wheels, either of which can be manually engaged to give forward drive or reverse. One rear pulley is fitted on each of the half shafts of the rear wheel swing axle suspension unit.

When the car is at a standstill, the front pulley has a smaller diameter than the rear one. The drive, in starting from rest, is engaged automatically by a centrifugal clutch, and the car moves off on the Variomatic's lowest possible reduction. As the transmission has no definite steps between ratios, it is not necessary to break the drive from the engine except when the car is stationary with the engine running. Thus the clutch can be a very simple affair, as it is required only to take up the drive progressively when moving from rest. It comprises a drum-type clutch attached to the flywheel, engaged

Below: Two-pedal control is unusual on such a small car. The hand brake lever is set between the individual front seats. A selector mounted on the propeller shaft tunnel is used only to engage forward and reverse. Right: The 590 c.c. horizontally opposed, two-stroke engine is mounted forward of the front wheel centre line. Cooling is by a four-bladed unducted fan which runs at crankshaft speed



NEW CARS DESCRIBED



CHARLES BURKI

Unitary construction is used for the body. The deep propeller-shaft tunnel is also an important load-carrying member, bracing the front scuttle and rear seat pan structure

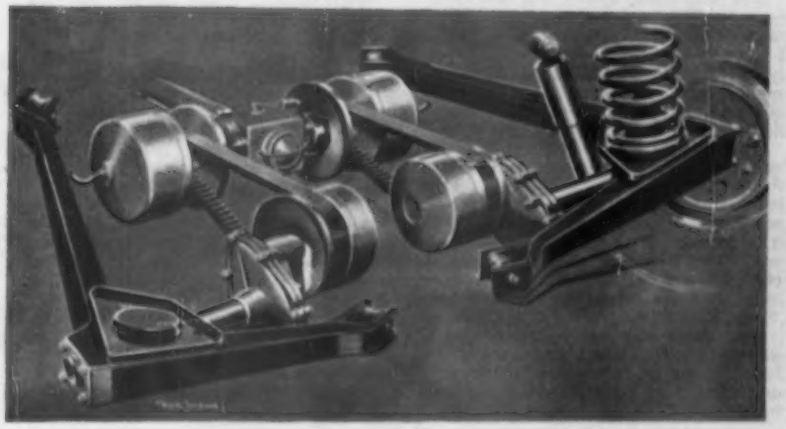
by a series of fabric-lined shoes each with a single pivot, and automatically actuated by centrifugal force.

As the car gains speed, the axial thrust of a number of centrifugal weights rotating inside the front pulleys moves the sliding halves inwards, increasing the effective diameter of the front pulley. This causes a change in the gear ratio, so to speak, and the Variomatic changes ratio continuously upwards.

When the rolling resistance increases, or when the car has to climb a hill, the Variomatic progressively selects a lower ratio. As soon as the V-belts are required to transmit more torque, the tension on their "tight" sides (resulting from the higher resistance) causes them to move automatically to a larger diameter on the rear pulley. Thus the Variomatic reacts rapidly and automatically to any increase in driving resistance.

Induction vacuum is used in addition to centrifugal force to control the selection of ratios; for this purpose the front pulley assemblies are fitted with vacuum cylinders connected to the induction mani-

Layout of the rear suspension and Variomatic transmission. The 1⅛in wide V-belts are exposed to dirt thrown up from the road, but it is claimed that this has no detrimental effect on their life



SPECIFICATION

ENGINE

No. of cylinders	2, horizontally opposed, air-cooled
Bore and stroke	74 × 65mm (2.99 × 2.56in)
Displacement	590 c.c. (36 cu in)
Valve position	Overhead
Compression ratio	7 to 1
Max. b.h.p. (gross)	22 at 4,000 r.p.m.
Max. b.m.e.p.	133lb sq in at 2,500 r.p.m.
Max. torque	32.5 lb ft at 2,500 r.p.m.
Carburettor	Solex Downdraught
Fuel pump	Engine-driven diaphragm type
Tank capacity	6½ Imp. gallons (28 litres)
Sump capacity	3½ pints (2.13 litres)
Cooling system	Air cooled with open fan
Battery	6 volt 56 amp hr

TRANSMISSION

Clutch	Automatic centrifugal shoe and drum
Transmission	Automatic with variable dia. pulleys and belts
Overall gear ratios	Progressive between 4.4 to 1 and 20 to 1
Final drive	Twin V-belts

CHASSIS

Brakes	Hydraulic; mechanical hand brake on rear
Drum dia.	7in
Suspension: front	Transverse leaf spring with telescopic dampers which act as wheel swivels
rear	Swinging half-axles with diagonal trailing links and variable rate coil springs
Dampers	Hydraulic telescopic
Wheels	3 stud pressed steel
Tyre size	5.20—12in
Steering	Rack and pinion
Steering wheel	Dished 2-spoke

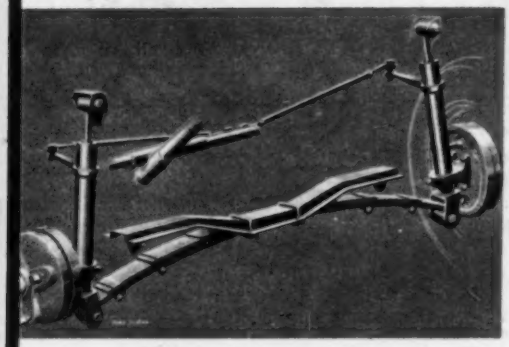
DIMENSIONS

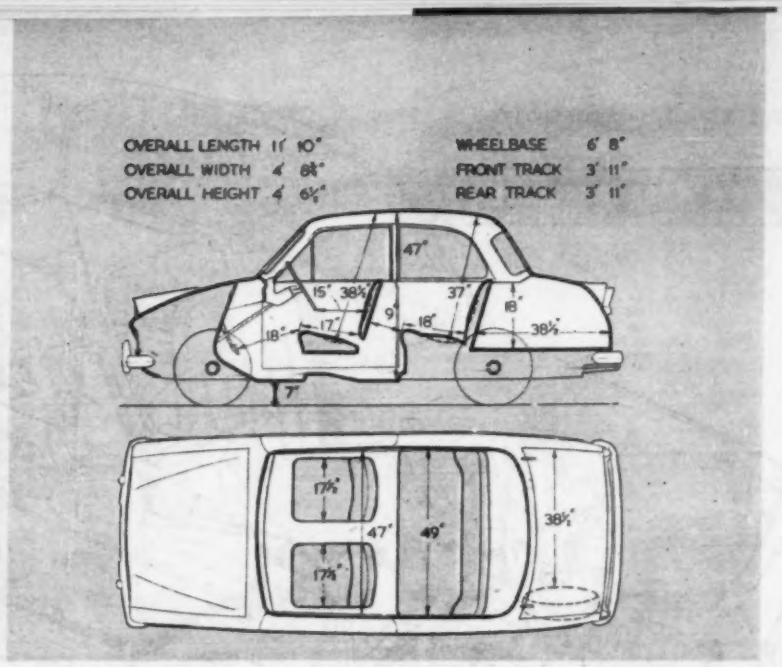
Wheelbase	6ft 8in (205 cm)
Track: front and rear	3ft 11in (120 cm)
Overall length	11ft 10in (360 cm)
Overall width	4ft 9in (144 cm)
Overall height (laden)	4ft 6in (138 cm)
Ground clearance (laden)	7in (18 cm)
Interior width at shoulders	F, 3ft 11in (120 cm) R, 4ft 1in (125 cm)
Turning circle	28ft (850 cm)
Kerb weight	1,268lb (11¼ cwt) (575 kg)

PERFORMANCE DATA

Weight distribution	
Laden	F 47 per cent. R 53 per cent
Unladen	F 50 per cent. R 50 per cent
Claimed max. speed	56 m.p.h. (90 k.p.h.)
Claimed fuel consumption	48 m.p.g. (5.9 litres per 100 km)

D.A.F. FROM EINDHOVEN . . .





Left: Telescopic dampers in the front suspension also act as wheel swivels. Steering is by rack and pinion, with forward-facing steering arms. Right: Leading dimensions. The back rests of the individual front seats are adjustable for rake and hinge forward to assist entry to the rear

fold. Thus the system is responsive to speed and load. When the throttle is opened completely the absence of vacuum makes the Variomatic react more slowly to the centrifugal force, which means that the transmission stays longer in a lower ratio. The same thing happens while overtaking—when the accelerator is pushed down on the floor the drive belts automatically take up a position of lower ratio.

The Variomatic system not only functions soundly in theory, but also on the road. During the presentation of the car I had a chance to drive one of the prototypes for a few laps on the D.A.F. factory proving grounds. The acceleration, if not brisk, is well up to the normal standards for a 600 c.c. car.

The only drawback of the Variomatic system is the fact that one cannot effectively brake on the engine, because when the throttle is closed the highest gear ratio remains engaged and in these conditions it is impossible to take up to a lower one. However, this is not serious in Holland—a flat country with almost no hills—and the brakes are in fact quite adequate even for Swiss holiday touring.

The D.A.F. car has no differential as such. The Variomatic takes care of this function, for when the force required by one wheel is greater than that required by the other, the so-called torque sensibility of the V-belts take over. One advantage of the Variomatic system is that its behaviour is like that of a non-slip differential, or a self-locking one. There is always traction and D.A.F., who are constantly busy on the production and development of trucks for the army, probably had in mind during the design stages that this transmission system would be easy to adapt for small army vehicles.

Apart from this rather unusual transmission layout, which during tests has proved itself for many ten thousands of miles, the car's construction is basically normal.

The engine, a horizontally opposed, air-cooled twin with overhead valves, has a capacity of 590 c.c., and with a compression ratio of 7 to 1 develops 22 b.h.p. gross (about 18 b.h.p. nett) at 4,000 r.p.m. The use of a long intake manifold with comparatively small diameter ports—which, of course, have a limiting effect on engine breathing—makes it apparent that this two-cylinder is primarily designed for a long life rather than for startling perfomance. The engine is mounted at the front on three very flexible rubber mountings, to minimize vibrations.

There is a small transmission tunnel, but as there is no gear box behind the engine there is not the usual humped protrusion into the front passenger compartment. The Variomatic unit is stowed under the rear seat of the car, and so does not take up much valuable space. To maintain adequate ground clearance and keep pulley sizes within reasonable proportions, there is a reduction gear between the rear pulleys of the Variomatic unit and the wheel drive shafts.

The D.A.F. has all-round independent suspension, in front by a low transverse leaf spring with the dampers-cum-kingpins already mentioned, and at the rear by sturdy triangulated wheel-locating members, swing axles, progressive coil springs and double-acting telescopic shock absorbers. As each of the rear pulleys of the Variomatic unit is mounted on a swinging half-axle, it moves in an arc relative to its mating front pulley. The axis about which it swings coincides with the tight side of the vee-belt, so avoiding wheel movement effect.

The excellent weight distribution—the engine in front, the transmission at the rear—and a well-damped but not too firm suspension, endow the car with really remarkable road-holding. The high degree of comfort and the ease of operation—thanks to the transmission—give immediate confidence not only to the expert driver but also to those with limited driving experience.

With this product the D.A.F. factory has shown that to start from scratch can have many advantages. The car—which in Holland will cost the equivalent of £400—is one of the cheapest on the Dutch market. Its price is £100 to £150 lower than those of the Morris Minor, the Volkswagen and the Renault Dauphine, and although it is no direct competitor to them as far as performance goes, the top speed being about 56 m.p.h., the introduction of the D.A.F. undoubtedly will have a direct influence on the sales of these three very popular foreign cars.

Although the D.A.F. is displayed at the motor show in Amsterdam production will not commence until next September, starting with a few hundred per month, increasing to 25,000 total output for 1960.

G. P. BERK.

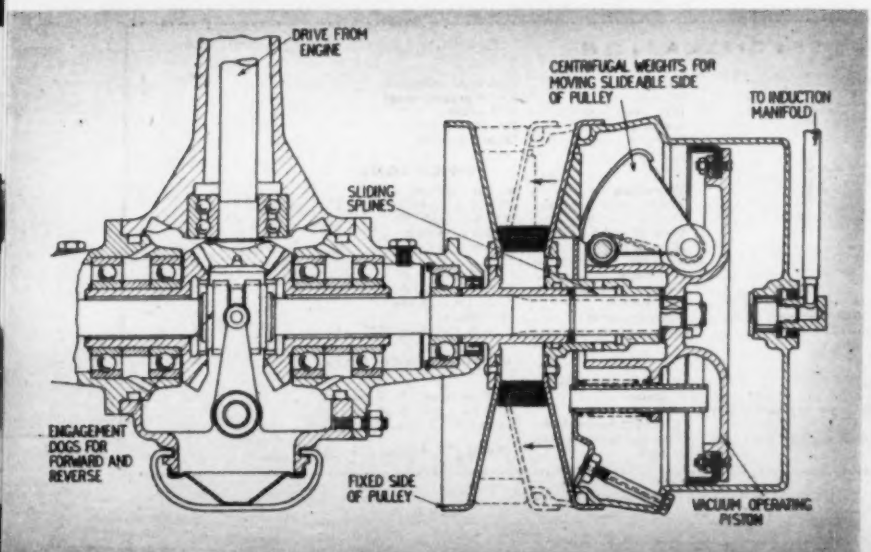

DRIVE FROM ENGINE
CENTRIFUGAL WEIGHTS FOR MOVING SLIDEABLE SIDE OF PULLEY
TO INDUCTION MANIFOLD
SLIDING SPLINES
ENGAGEMENT DOGS FOR FORWARD AND REVERSE
FIXED SIDE OF PULLEY
VACUUM OPERATING PISTON

Diagram of the bevel box and forward pulleys of the transmission. The effective diameter of the pulleys is adjusted by centrifugal weights and induction pressure, which makes the system responsive to speed and load

Sensationelle!

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She's a French car all right — and first-class too. Beneath her delightful design, the Renault Dauphine has amazing economy and performance. She can do 45 miles to the gallon and still show a trim pair of wheels at 70 m.p.h. Her independent 4-wheel suspension gives exceptional road-holding qualities and she's equipped with a host of fitted extras. In fact, she's a joy to drive.

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Price: £796.7.0 (inc. P.T.)
Two-pedal control optional

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CVS-330

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HERE'S HOW IT WORKS

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In normal running, the special slots in the ribs are closed. The tyre runs smoothly, silently. Steering is easy and steady. Wear is slow and even . . . you get longer mileage.

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The instant you accelerate, corner or brake, the slots open into thousands of gripping edges. These give greatest control, stability and safety on any road, and on all four wheels.

BUILT FOR SAFETY—BUILT TO LAST

The new de Luxe All-Weather is the tyre with the unique tread that adjusts *instantly* to changing road conditions and driving demands. And that's not all. In this great new Goodyear tyre you get other exclusive features — such as 3-T carcass cord — which give more reliability, safety, comfort and mileage at no extra cost. See it at your supplier's now — in tubeless or tube-type.

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GOODYEAR

THE WORLD OVER, MORE PEOPLE RIDE ON GOODYEAR TYRES THAN ON ANY OTHER MAKE

Elegantly styled, the Frégate has commendable forward vision, assisted by a steeply-sloping, single curvature screen. Two-tone colouring is available only on the Grand Pavois. The bolt-on spoked wheels, are not available in this country

Autocar ROAD TESTS 1673

Renault Frégate Grand Pavois
(TRANSFLUIDE DRIVE)

WHEN the Renault Frégate was first introduced in 1950 it was not received with marked enthusiasm, for it is a quite heavy car for the orthodox two-litre engine, which at that time developed only 57 b.h.p. During the past eight years the car has been subjected to gradual but important development, without change of the basic concept. The model recently submitted for test was fitted with the Transfluide transmission, introduced last November. Speed and acceleration were not high in comparison with competitors, but its road-holding and stability were praised by all staff members who drove it. It has that rather indefinable but extremely desirable characteristic, namely a feeling of considerable reserves in handling and safety—and, as the French say, it has "*robustesse.*"

In standard form the Frégate has an orthodox four-speed gear box, and clutch. The model tested was the de luxe Grand Pavois and two-toned inside and out.

The Transfluide is termed by the manufacturers an automatic transmission, but it is more specifically of the semi-automatic type. It comprises an hydraulic torque converter in conjunction with an electro-magnetically controlled but otherwise orthodox plate clutch, and three-speed gear box with synchromesh on all ratios. The converter, which has a maximum torque multiplication ratio of 2.2 to 1, is operative in each of these three gears. First is E (Exceptionelle) for emergency use only, second is M (Montagne) and top VR (Ville-Route). These French designations are retained in the indicator quadrant, for the Frégate is imported into this country fully assembled, with right-hand drive. Other positions on the manual gate are Park, Reverse and Neutral.

When the manual shift lever is grasped, the clutch is disengaged for changing ratio; there is a delayed re-engagement worked, with dashpot damping, from the induction manifold, which ensures a smooth take-up after the lever is released. The engineering standards of the manual lever are not in keeping with the rest of the transmission, for it is springy and indefinite in action, and often difficult to engage. Furthermore, on the test car, the indicator panels which light up to show the particular gear range engaged were often out of phase.

As it is possible to engage reverse at low forward speeds and the vertical movement across the gate is particularly flexible, this gear was selected several times when second was required and actually indicated.

Maximum performance is obtained by making frequent use of M range; from a standing start E provides little advantage because of the slowness of the manual change. For those who are satisfied with less brisk acceleration, the lever can be left in the VR position from standstill to full speed. Take-up is absolutely smooth, and although one has the impression that the engine is undertaking a lot of work, not all of which is reaching the road wheels, the rate of take-off is scarcely ever an embarrassment to other motorists, and station can be maintained with the normal pace of a city traffic stream.

In VR range, true single-gear motoring is obtained. Provided the transmission slip, with its effect on performance and fuel consumption, is acceptable, progress in this gear is particularly pleasant. There is no kick-down operation of the throttle and no hunting between gears in particular circumstances; these are characteristics of the

Three auxiliary lamps shown here are optional extras. The bonnet is released externally by a two-stage catch situated in the front grille

Renault Frégate Transfluide . . .

There are two turn indicators on each side at the rear, one in the light cluster and the other in the waist moulding. The latter are used also as parking lights, having clear glass forward and red to the rear

A sunshine roof which is very easy to operate can be supplied at an additional £27, inclusive of purchase tax. Front-hinged, frameless ventilator panels are fitted to each front door

majority of fully automatic transmissions. The car cruises effortlessly at 70 m.p.h., but is rather slow in reaching this speed. When the car is fully laden, main road gradients approached at between 30 and 40 m.p.h. become rather noticeable, and to overtake other vehicles proceeding at this speed demands a long clear stretch of road.

The relaxed driving which VR ratio provides when used alone has to be paid for in fuel, for the consumption in VR at low speeds is noticeably more than when using this gear in conjunction with second (M). A particular outward and return journey from the centre of London to a point 23 miles away formed part of the test. It was covered in both directions, involving rush hour traffic, and for a total of 92 miles the fuel consumption worked out at 17.8 m.p.g. when using VR alone. Repeating this journey at approximately the same times and in similar conditions, but using M and VR, the consumption was 21.2 m.p.g.

Hard driving on open roads, using all three gears, gave a consumption of 18.2 m.p.g., and economy cruising, using M and VR alone in similar circumstances, resulted in a consumption of 26.4 m.p.g.

Above the range of speed where the torque converter noticeably affects performance, the car takes on a new mantle; its attractive high gearing and lusty four-cylinder engine sweep the car along in a most effortless manner. Even at these higher speeds the power unit remains commendably smooth, indicating that the modified mountings, probably helped by the cushioning effect of the torque converter, have nullified earlier criticisms of harshness.

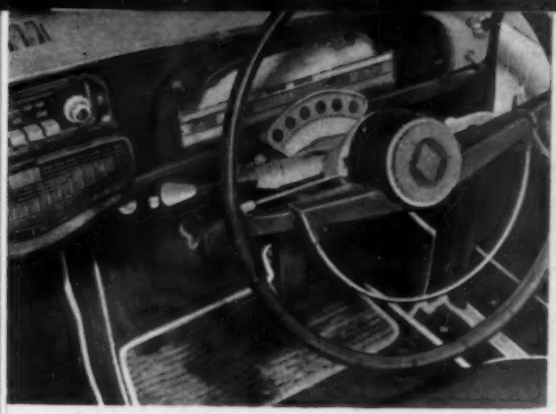
A considerable amount of aerodynamic research was undertaken before the present body form was evolved, and the results of this work are apparent in the exceptional freedom from wind noise at maximum speeds. This feature was further demonstrated when the sunshine roof was open. Regardless of the extent of roof opening, air never swirled inside to such a degree that it caused discomfort either to front or rear passengers. Equally thoughtful is the fitting of front-hinged ventilating windows in the front doors; they move easily, maintain a set position, and their leading edges are frameless, so that they do not add to the thickness of the screen pillars.

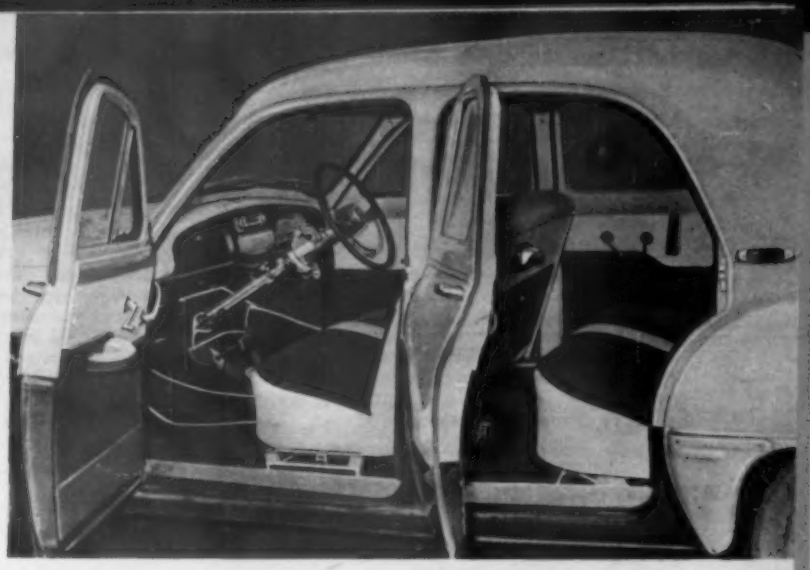
Forward visibility is very good indeed, aided by a very wide single curvature, steeply-raked screen, which emphasizes the fact that an adequate field of vision can be provided without resorting to full wrap-round and to overhung pillars which impede entry to the car. Single-speed wipers, almost inaudible in operation, clean a very large proportion of the glass area, but they become slow in operation unless well wetted.

The driving position is good, with an adequate range of seat adjustment, but the comfort of the seats is not above criticism. The cushions are short fore and aft and do not support the thighs properly, with the result that there is some fatigue on long journeys. Instruments are thoughtfully if not attractively laid out. The switches are rather haphazardly placed. Beneath the steering wheel, on the left-hand side, is the manual gear change and turn indicator switch. In a similar position on the right-hand side is a rotating switch with a flick lever, which controls all lights; pressing the end of this lever operates a low-tone horn for town use. A more penetrating warning for main road use is operated by a half horn ring on the two-spoked steering wheel. There are fixed arm rests on each front door, and central folding ones for the front and rear seats; these are particularly useful when full advantage is taken of the car's remarkable cornering powers.

A combined ignition and starter switch is mounted in a rather awkward position beneath the steering column,

The luggage locker lid is self-supporting with a stay which requires to be released by hand. Starting handle, screw jack and tool roll are clipped to the right-hand wing valance





Above: Manual gear selector and indicator quadrant for the Transfluide transmission, which provides two-pedal control. Right: Entry to front and rear is very good, assisted by pronounced rounding of seat corners. More fore and aft depth of the seat cushions would improve comfort. Two-tone trim is special to the Grand Pavois

operated by a key which is sometimes difficult to insert and withdraw. A word of warning must be given on the operation of this switch, for the engine can be started in any gear. To those not familiar with the workings of a torque converter this constitutes a danger, for the car will leap forward, or backwards if in reverse, if the engine fires. When the key is removed the steering wheel becomes locked as the front wheels are turned to their straight-ahead position. Courtesy lights on each central door pillar are in circuit when the doors are opened, and their spherical glass covers can be rotated to switch them on at other times.

Six adults can be transported in adequate comfort, and the Frégate is one of the very few cars of such size to have independent rear suspension. Each wheel is mounted on a stiff, trailing arm which oscillates around an inclined pivot; this gives the wheels a slight degree of negative camber at full deflection.

Independent rear suspension has an incidental advantage in permitting a flat rear floor, because the propeller shaft and final drive do not move with the wheels. But on the Frégate the floor is high and, relative to it, the rear seat cushion is set low to allow sufficient headroom; forward visibility is restricted for rear passengers by the lowness of the back seat cushion relative to the front seat.

Springing is firm without being harsh, and is heavily damped. At no time are the occupants of the car subjected to any undesirable degree of roll or pitch. During part of the test many miles were covered on deeply rutted and hard-packed snow. The car traversed this surface on an even keel in perfect control and without bounce, at a speed far higher than could be achieved by most other road users. Most noticeable was the complete absence of shudder or shake, indicating that a very high degree of stiffness has been obtained in the construction of the unitary body.

Outstanding is a word which must not be loosely applied if its value is to be retained, but no other term adequately describes the road-holding capabilities of the Frégate. Three features contribute to this—a well-balanced suspension system with negligible roll on fast curves, precise steering with no free play or road shocks, and brakes which can be applied with confidence in all conditions. Reference to the performance tables may at first suggest that the braking efficiency is not very high, but this resulted from a damp road surface which caused the rear wheels to lock at the 30 m.p.h. test speed when the drums were cool. From higher speeds, and with the drums at normal working temperature, the brakes were always consistent in their behaviour. Pedal loads are light and well-balanced, and there was no evidence of fade after several successive applications from 70 m.p.h.

Michelin X tyres of French proportions were fitted (normal driving pressures—front 21 lb sq. in., rear 23, hard driving 25 and 29 respectively), but the standard tyres are tubeless 6.40-15 in. This departure from the standard fitting probably accounts for the unduly optimistic speedometer, since the X tyre has a reduced rolling radius for a given section. Stability and adhesion in the wet were excellent, but these tyres caused a slight heaviness in the steering. A taxi-like lock provides a turning circle of 31½ ft. despite a wheelbase of over 9 ft., most useful for parking and turning in traffic; but offsetting this advantage are the 4½ turns of the steering wheel required from lock to lock. However, in open road manoeuvres arm movement is not excessive.

Apart from the reservations on the seats already given, internal comfort is good, but the rather jazzy interior of this car, trimmed in navy and very pale blue, seemed out of character with the rest of the car. Surfaces of the upholstery subjected to most wear are trimmed in plastic, and the other areas in nap cloth. Rather surprisingly, a fluffy head lining is used and the very pale colours were already soiled, with the speedometer recording under 4,000 miles.

An effective heater of French manufacture is part of the standard equipment. Rather slow to warm up, it provided good distribution through the car and adequately demisted the screen when the silently-operating booster fan was brought into the circuit.

Each front door can be separately locked with the ignition key, which is used also to open the luggage locker. This is of commendable size, with a flat floor; the spare wheel is mounted closely in on the left side and all loose tools and jacks are clipped in position on the right side to avoid damage to luggage. The fuel tank filler is located behind a spring-loaded external door. The cap is easily removed and there is no blow-back when filling the 13-gallon tank, which provides a cruising range for nearly 300 miles.

Orange lights of French make were fitted to this test car, and a higher degree of main beam illumination with a less sharp cut-off would have been appreciated. There were additionally two rectangular matching fog lamps (extras, and vulnerably mounted) and one of circular form with clear glass.

For those undertaking home maintenance, accessibility in the engine bay is very good, but there are a larger number of greasing points on the chassis which need frequent attention.

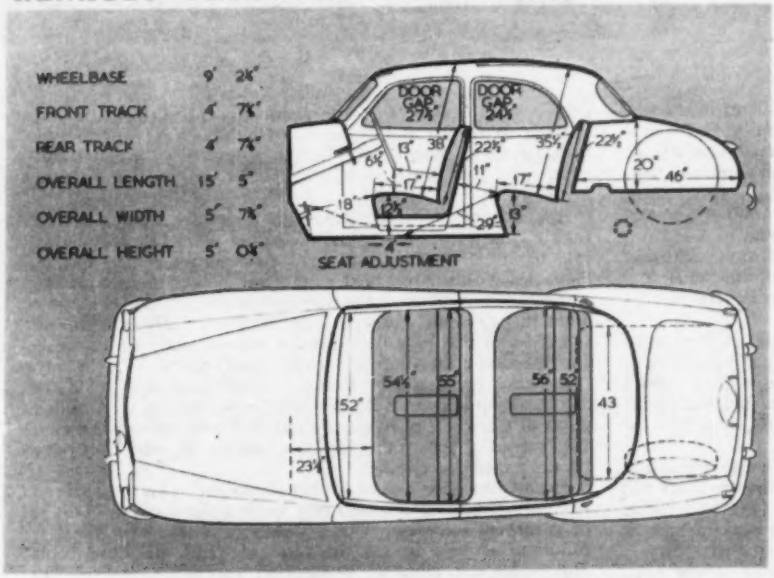
A Sofica heater unit is standard equipment. Accessibility to the four-cylinder engine is good; in nearly 1,000 miles of testing the engine used only a half-pint of oil

Renault Frégate Transfluide . . .

Very cold weather was experienced during the test; the engine was a ready starter in these conditions. An automatic choke is fitted to the carburettor, and it is very progressive as it goes out of operation, maintaining an even tick-over in this transition period. The extra drag of the cold oil in the torque converter occasionally gave rise to stalling when the manual selector was moved from neutral to drive range, and the combination of cold stalling and difficult, non-positive gear selection made reversing from the garage at the start of the day a tedious business.

The Frégate can best be summed up in two parts. It has a very high standard of road-holding, combined with an unusual reserve of safety; these characteristics impart confidence to the driver and passengers in all circumstances. With Transfluide transmission, which adds £138 15s to the total price of the car in this country, it is acceptable provided its properties are fully understood and required. Performance is not so good as could be achieved with a stepped gear box and normal clutch, and fuel consumption is affected adversely by its use. For those who are more interested in easy driving than performance, it is a satisfactory solution, at a reasonable price, for the combination of roomy car with quite small engine.

RENAULT FRÉGATE



Measurements in these ¼in to 1ft scale body diagrams are taken with the driving seat in the central position of fore and aft adjustment and with the seat cushions uncompressed

PERFORMANCE

ACCELERATION: from constant speeds.

Speed Range,	Top	2nd	1st
Gear Ratios and Time in sec.	8.5-	13.8-	19.0-
M.P.H.	3.9 to 1	6.3 to 1	8.6 to 1
10—30 ..	8.5	6.9	6.1
20—40 ..	12.5	9.7	8.7
30—50 ..	16.4	12.0	—
40—60 ..	20.7	19.3	—
50—70 ..	32.9	—	—

From rest through gears to:

M.P.H.	All Gears sec.	Top sec.	2nd sec.	1st sec.
30	8.1	11.5	9.4	7.8
50	20.6	27.9	21.4	—
60	31.5	39.7	—	—
70	49.8	60.8	—	—

	All Gears	Top	2nd
Standing quarter mile	25.2	28.7	25.9

SPEEDS ON GEARS:

Gear	M.P.H. (max.)	K.P.H. (max.)
Top .. (mean) ..	79.7	128.3
.. (best) ..	82	132.0
2nd	63	101
1st	44	71

TRACTIVE RESISTANCE: 28 lb per ton at 10 M.P.H.

TRACTIVE EFFORT:

	Pull (lb. per ton)	Equivalent Gradient
Top	211	1 in 10.5
Second	357	1 in 6.2

BRAKES (at 30 m.p.h. in neutral):

Efficiency	Pedal Pressure (lb)
53 per cent	25
71 per cent	50

FUEL CONSUMPTION:

20.8 m.p.g. overall for 935 miles (13.6 litres per 100 km).

Approximate normal range 17.5-26.5 m.p.g. (16.1-10.7 litres per 100 km).

Fuel, Premium grade.

WEATHER: Warm and dry, negligible wind, damp concrete surface.

Air temperature 51 deg F.

Acceleration figures are the means of several runs in opposite directions.

Tractive effort and resistance obtained by Tapley meter.

Model described in *The Autocar* of Sept. 20, 1957.

SPEEDOMETER CORRECTION: M.P.H.

Car speedometer:	10	20	30	40	50	60	70	80
True Speed	9	18	27	36	45	54	62	71

DATA

PRICE (basic), with saloon body, £1,027 10s 0d.
British purchase tax, £515 2s 0d.
Total (in Great Britain), £1,542 12s 0d. (includes heater).
Extras: Radio £34 13s 0d (including P.T.), Sunshine Roof £27 (including P.T.).

ENGINE: Capacity: 2,141 c.c. (130.6 cu in).
Number of cylinders: 4
Bore and stroke: 88 × 88 mm (3.46 × 3.46 in).
Valve gear: O.H.V. with pushrods.
Compression ratio: 7.5 to 1.
B.H.P.: (gross) 80 at 4,000 r.p.m. (B.H.P. per ton laden 52.5).
Torque: 124 lb ft at 4,000 r.p.m.
M.P.H. per 1,000 r.p.m. on top gear, 19.8.

WEIGHT: (with 5 gals fuel), 27¼ cwt (3,066 lb.).
Weight distribution (per cent): F, 56.5; R, 43.5.
Laden as tested: 30½ cwt (3,400 lb).
Lb per c.c. (laden): 1.59.

BRAKES: Type: Lockheed. Front, two leading shoes; rear, leading and trailing shoes.
Method of operation: Hydraulic.
Drum dimensions: F, 11in diameter; 2¼in wide; R, 11in diameter; 2¼in wide.
Lining area: F, 113 sq in. R, 82 sq in (128 sq in per ton laden).

TYRES: 6.40-15in (standard).
Pressures (lb sq in): (See text for special circumstances).

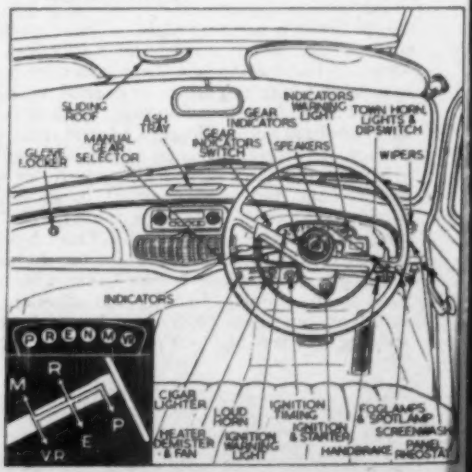
TANK CAPACITY: 13 Imperial gallons.
Oil sump, 12 pints (includes engine and fluid transmission).
Cooling system, 18 pints (including heater).

TURNING CIRCLE: 31ft 6in.
Steering wheel turns (lock to lock): 4½.

DIMENSIONS: Wheelbase: 9ft 2½in.
Track: F and R, 4ft 7⅛in.
Length (overall): 15ft 5in.
Height: 5ft 0¼in.
Width: 5ft 7⅛in.
Ground clearance: 7in.

ELECTRICAL SYSTEM: 12-volt; 60 ampère-hour battery.
Head lights: Double dip; 36-45 watt bulbs.

SUSPENSION: Front, coil springs, wishbones and telescopic dampers. Rear, independent—coil springs with trailing links, telescopic dampers. Anti-roll bars at front and rear.

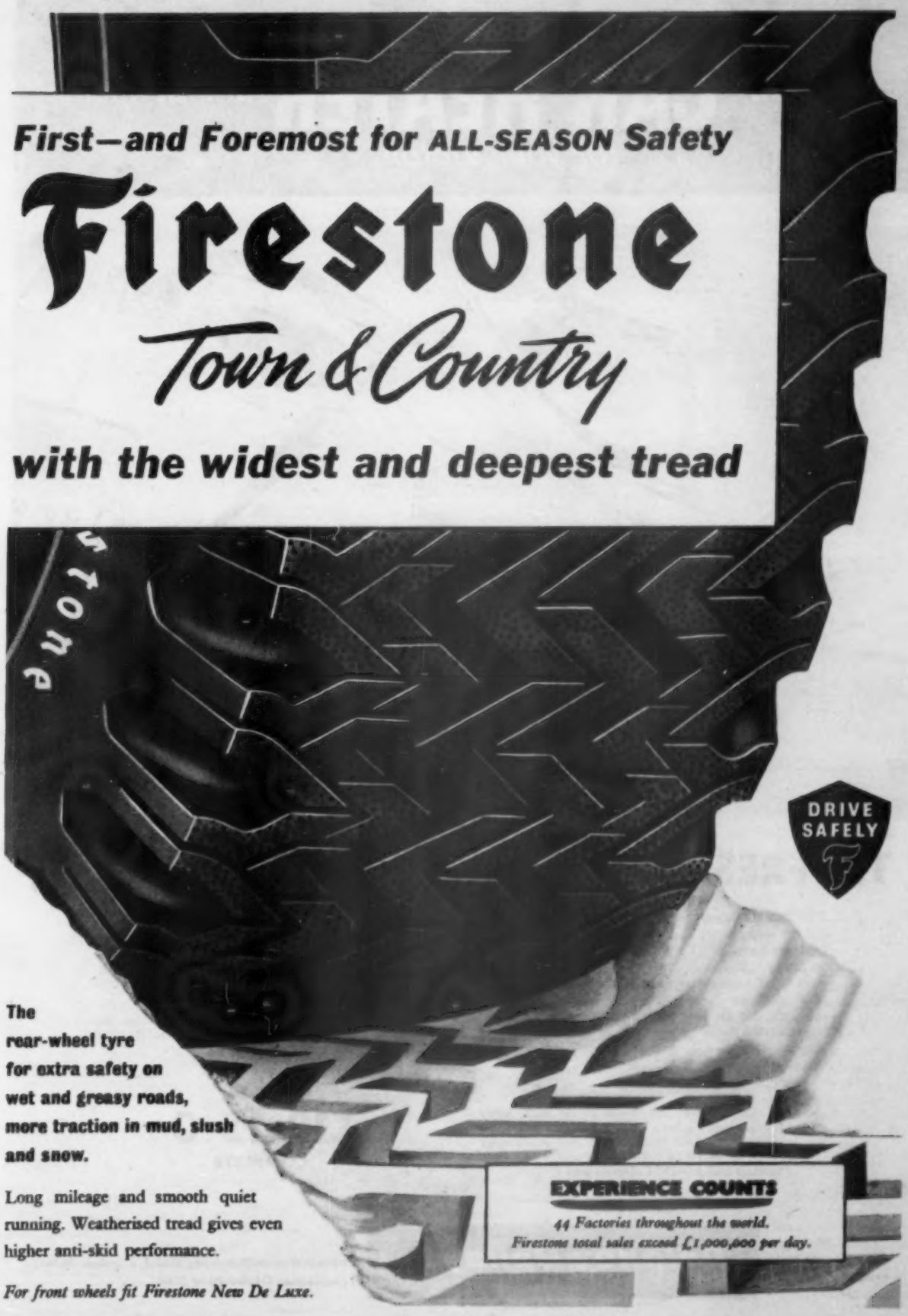


First—and Foremost for ALL-SEASON Safety

Firestone

Town & Country

with the widest and deepest tread



The rear-wheel tyre for extra safety on wet and greasy roads, more traction in mud, slush and snow.

Long mileage and smooth quiet running. Weatherised tread gives even higher anti-skid performance.

For front wheels fit Firestone New De Luxe.

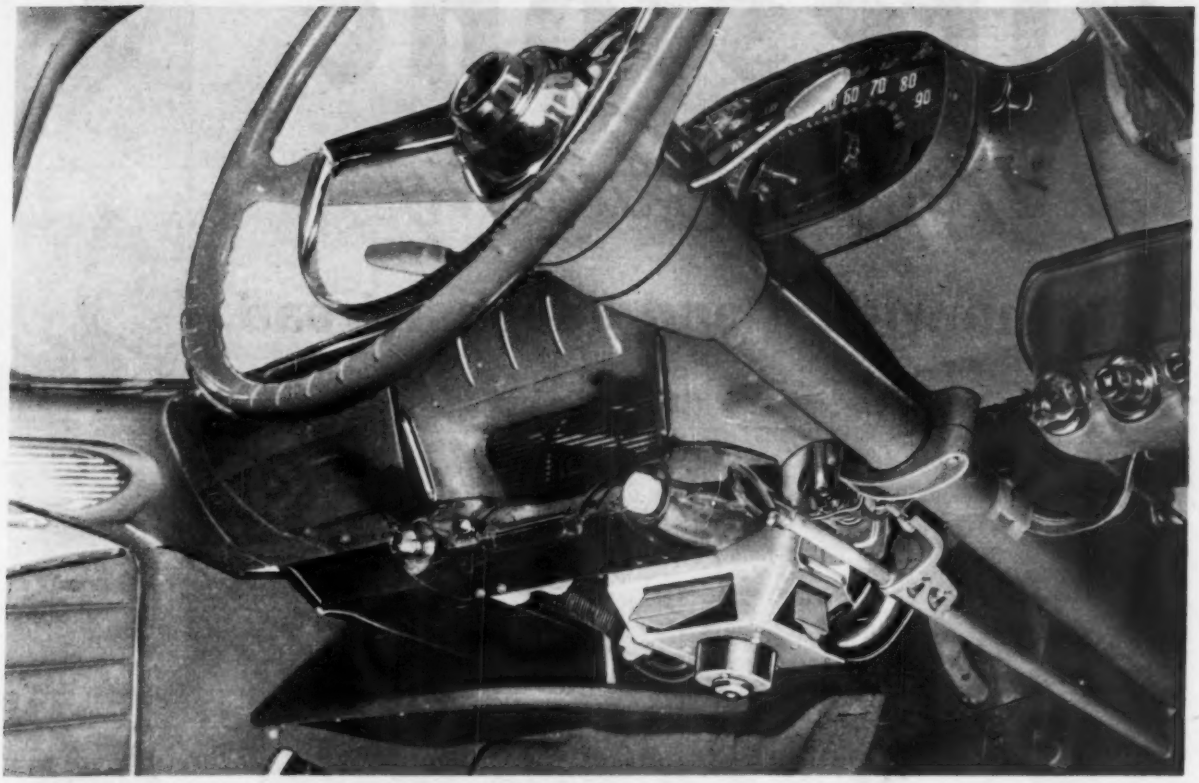
EXPERIENCE COUNTS

44 Factories throughout the world.
Firestone total sales exceed £1,000,000 per day.

DELANAIR

The new **CAR HEATER** and demister

for your Victor*



The FRESH AIR heater that does everything

The 'Delanair' is really three heaters in one. On the open road, you enjoy all the advantages of fresh air heating. In traffic, when the air is full of poisonous exhaust fumes, you close your fresh air intake and re-circulate through the heater the air already in the car. And when it is freezing and bitterly cold, you can use both fresh air heating and re-circulation at the same time and have all the heat you require.

Whichever of the three you are using, the 'Delanair' is thermostatically controlled. By a simple push-pull knob you set the heater at the degree of warmth you prefer and know that that temperature will be maintained automatically *no matter how the outside* temperature may vary.

Add highly efficient windscreen defrosting and quiet operation and what more can you want?—except to know that the price is

ONLY

£12.15.0

COMPLETE

* *At the moment the 'Delanair' is made* **only** *for Vauxhall Victors. Our* **Good Companion** *model (from* **£9.5.0***) will fit almost every other car. Our* **A.19 (£8.8.0)** *is specially for Ford Populars and pre-1954 Anglias and Prefects.*

See your garage or write for full details to:

Delaney Gallay LTD

Vulcan Works, Edgware Road, London, N.W.2.
Telephone: GLAdstone 2201

Disconnected Jottings

BY THE SCRIBE
Barry Appleby Drawings

"These Are Yours, Now"

A PURCHASER of a low-mileage, quality car was well satisfied with it; it came from a good garage, and the previous owner had left it in the condition characteristic of a keen motorist.

The buyer happened to meet the ex-owner later, and the latter suddenly produced two important-looking bronze washers, handing them over with the remark: "These are yours, now. I left them out of the rear axle when I overhauled it recently. They don't matter."

Since then, the washers have been burning a hole in the new owner's pocket, and he has written to us to know whether he can get away with not fitting them. I understand that those charged with these matters are replying in a grave and helpful manner.

Extra Bits

WHEN I was too young to know better, I once left an assortment of old nuts and bolts on the garage floor underneath the car of a keen owner. He soon had the local garage completely distracted, trying to find out where they had come from. Since then, I have learned tender sympathy and kindness for *anyone* who owns *any* car.

Conditioned Reflexes

YOU have read about "conditioning," a process in which modern scientist and tyrannies have taught us that if you make a goldfish loop-the-loop through a glass tube to get at his food, he will go on looping-the-loop when the tube is disused. This is a pretty party trick recommended to

Involuntary reflex

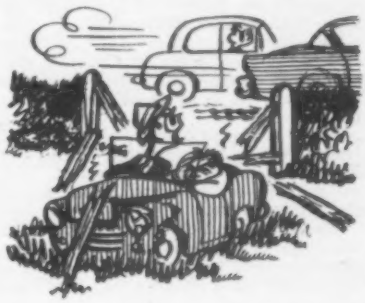
goldfish-owning readers. Cavemen parents, of course, conditioned their children to do or not to do things with aids that are denied to the modern humanitarian.

"Conditioning" can be very valuable to motorists. I was reminded of it by an article about safety glass. It was there suggested that a driver should often *think* of a suddenly opaque screen, turned into crystals because a stone had been thrown up. Then, when it actually happened, subconscious self would thrust a fist through and achieve a porthole, greatly to the relief of clueless and panicking conscious self.

Brooding

AS I am of a nervous and diffident temperament, I have always brooded over improbable mishaps and contingencies, and I think that this is valuable. For instance, my early motoring was in good cars, with myself as a very junior and probationary driver, so I went carefully. But an excellent explanation of how to cope with a front wheel skid had been given me by an older and better driver.

Then I had had my first skid of this kind—the front of the car went straight on at a corner on a patch of unnoticed soggy autumn leaves, inducing a mood of paralysed fright. Recovering from this, I noted that I was round the corner, and that sub-conscious had unwound the steering a bit and kicked the tail round. I had never practised the trick for fear of failure and accident, but I had so often *thought* about it.


The old gate was rotten

Beak and Chalkline

IT works the other way round, too, with adverse effects. In our learning days we get heavily "conditioned" to the sole, single and only duty of keeping the darned car on the road. Later there is a pile-up in front of us, and we toboggan down to join it, as hypnotised as the famous chicken with it beak parked on a chalk line; broad grass verges, friendly ploughed fields and slender, non-resistant bushes offer their blandishments in vain. In such circumstances, the cross-country trials driver, or the rural type who regards roads as useful to but not essential for motoring, is at an advantage.

But it is possible for anyone to brood on the thought that running into anything, including oak trees, is preferable to running into people or oncoming vehicles. (30 m.p.h. plus 30 m.p.h. equals 60 m.p.h.).

I have been driven through a decrepit old gate by a rural type who, deeply wronged by dangerous passing between two oncoming vehicles, disliked the prospect of a head-on collision. Casualties were a dented wing and a broken head lamp glass. He said afterwards that his professional eye had instantly spotted that the old gate was rotten—anyhow, he was used to being in his neighbour's field, and had bought a cow there once. He wasn't even a good driver, but he saved lives.

Will Never Happen To Me

DO you know the true story of the doctor reassuring a woman suffering from vague fears?

"My good woman, it is as likely as that you should be struck by lightning."

"But Doctor, I *have* been struck by lightning."

She had, too, and it had been in all the papers.

Full Circle

A TOURIST who visited an Indian Reservation in the U.S.A. was charmed to find the little boys playing at Red Indians, chicken feather headdresses surmounting their outfits of shirts, jeans, and shoes. Their ideas on the subject derived from the comics and telly of the pale-face.

And recently I have seen a photograph, in *Flight*, of a very ordinary private aircraft, with old-fashioned tailplane and round fin. Its two-colour paint scheme, however, faithfully reproduced on the tail the sloping, sharp-pointed fins of the jet-age Detroit automobile. In fact, an aircraft imitating a car imitating an aircraft.

Klaxon Memorial

AT Monte Carlo, the Editor collected one of those delightfully courteous notices which the Monaco police have. They contain more welcome to the visitor than warning of the traffic offence he has committed. On this occasion, he seems to have *klaxonné sans necessité*. Other offences on the list are circulating at an excessive *vitesse;* not having followed the giratory sense; having embarrassed the public way; and not having *obtempéré au geste de l'agent vous invitant à stopper.*

I am glad France and Monaco keep the memory of the old Klaxon green by using it for "horn." Other words for horn are "trumpet," and something that sounds like "sonorous advertiser."

C

NEW CARS

A rain gutter runs round the Volga above the windscreen, and the heater air intake is through the scuttle. A prancing horse is the bonnet mascot, and there is a Russian star on the radiator grille

THE NEW RUSSIAN VOLGA

AT the Gorkij works in the Soviet Union is now being produced the new Volga, to replace the well-proven Pobeda, Russia's first medium-sized post-war car. Early announcements of the Volga mentioned many innovations which were to be introduced to Russian motorists—and to impress the world. However, the Volga as seen in Sweden provides no sensational news—it is a straightforward sturdy four-door saloon powered by a 2,442 c.c. o.h.v. engine.

The Volga follows normal Western practice in having unit construction of body and chassis. Generous window area is provided and a dry single-plate clutch takes the drive through a three-speed box to a semi-floating rear axle. Suspension at the front includes wishbones and coil springs; at the rear, semi-elliptic springs.

The engine output is 80 b.h.p. gross. Bore and stroke are 92 mm, and detachable liners are used. The aluminium pistons have two compression rings and one scraper; the head is of light alloy.

Carburation is conventional and a special control is provided on the down-draught carburettor to permit easy adjustment for variations in petrol quality. Water cooling, with a pump, is used and a metal radiator shutter, controlled from the interior, is standard equipment. Although remarkable claims for a "hydro-converter" were made when the prototype Volga was announced a couple of years ago, it has conventional transmission.

Brakes are hydraulic all round, and the hand brake works on a drum mounted on the transmission behind the gear box, in the Chrysler fashion. A notable feature, however, is that a centralized lubrication system is standard equipment.

A brief run in a Volga was an intriguing experience. The engine responds fairly well to the accelerator, but a flat spot in the carburation is annoying at times; it seems that the Russians have something to learn in this field, for carburation trouble is often a major headache for owners of the smaller Moskwitch.

The steering is heavy; it requires real effort to take the Volga round a bend at low speeds. There are about 3½ turns of the steering wheel from lock to lock. The turning circle is quite large, more than 41ft. The gear box is quite pleasant and the lever moves easily through the normal H gate. Synchromesh is provided between second and top. Acceleration is not exhilarating, but it is reasonably satisfactory, though the Volga is a heavy car—1,400 kg (3,080 lb) in road trim.

Major weakness of the Volga is in the brakes, which are extremely heavy, and the retardation is not impressive. The pedals both of brake and clutch are of the pendant type.

The heater and defroster equipment is unusually efficient—Siberian winter temperatures have been provided for! The fan is noisy but it directs a very good blast of hot air, either to floor or windscreen. The fresh-air intake is placed just below the windscreen. Facia layout follows previous Ford designs closely; the standard of finish is not impressive and the radio—standard equipment—has a noisy vibrator. Seats are upholstered with a bright cloth of average quality. The back of the front bench can be lowered to provide a bed. Luggage accommodation is ample, even though part is taken up by the spare wheel. Two well-equipped tool rolls are provided, probably reflecting the great distances between service stations in the Soviet Union. There are even two wooden blocks to act as stoppers when changing wheels! FRED VON TOBIESEN.

SPECIFICATION

MAKE: Volga (Manufactured by Gorkij Works, U.S.S.R.).

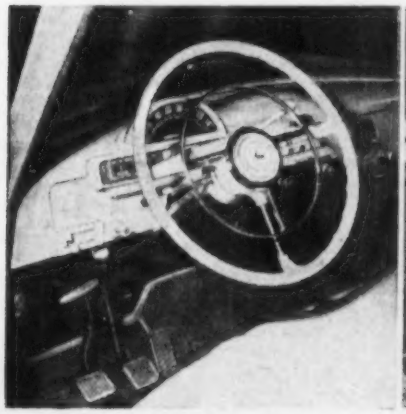
ENGINE: No. of cylinders, 4 in line; Bore and stroke, 92 x 92 mm (3.62 x 3.62in); Displacement, 2,442 c.c. (149 cu in); Valve position, O.H.V.; Compression ratio, 7.5 to 1; Max. b.h.p. (gross), 80 at 4,000 r.p.m.; Max. torque, 130.2 lb ft; Carburettor, one downdraught; Tank capacity, 13¾ Imp. gallons (60 litres); Battery, 12 volt 54 ampere hour.

TRANSMISSION: Clutch, single dry plate; Gear box, three-speed; steering column control; Overall gear ratios, top, 3.78; 2nd, 6.35; 1st 10.38; Final drive ratio, 3.78 to 1.

CHASSIS: Brakes, hydraulic; Suspension: front, coil springs and wishbones; rear, ½-elliptic springs, live axle; Dampers, hydraulic, telescopic front; Tyre size 6.70—15in.

DIMENSIONS: Track, front 4ft 11¾in (141 cm); rear: 4ft 8in (142 cm); Overall length, 15ft 10in (483 cm); Overall width, 5ft 11in (180 cm); Overall height, 5ft 3¾in (162 cm); Ground clearance, 7½in (19 cm); Turning circle, 41½ft (12.6 m); Turns, lock to lock, 3½; Kerb weight, 3,080 lb, 27½ cwt (1,400 kg).

Left: Heater controls are on the left of the facia, above the hand brake. Gear change is mounted on the right of the steering column. Right: Mud flaps hang down from the rear wings, and the fuel filler is covered by a hinged flap on the left. Reflectors are fitted above the rear bumper on this car, but they are not standard equipment



The incomparable

£840 *plus £421. 7.0 purchase tax.*
White-wall tyres and chromium rim finishers available as extras.

HUMBER HAWK

A car of distinguished appearance combining luxurious comfort and a smooth yet powerful performance with the highest standards of road holding and reliability.

Comfort

Exceptionally wide doors plus a lower floor give remarkably easy access to the luxury of a 6-seater interior that is inches more roomy in every direction.

Performance

The newly developed powerful Humber engine gives a performance that is smoother, more exciting—and economical.

Safety

These are the features: rugged unit construction ★ panoramic visibility ★ low centre of gravity ★ instant response ... vivid acceleration and powerful brakes

WITH FULLY AUTOMATIC TRANSMISSION OR OVERDRIVE AVAILABLE AS AN EXTRA

(Available also as a touring limousine)

A product of

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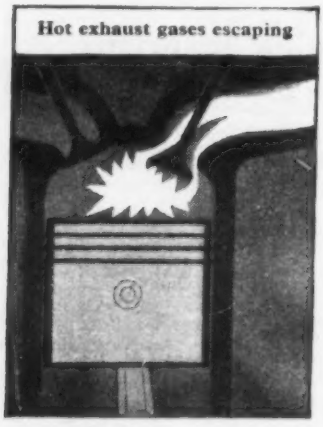
Valve Springs...
effect on performance

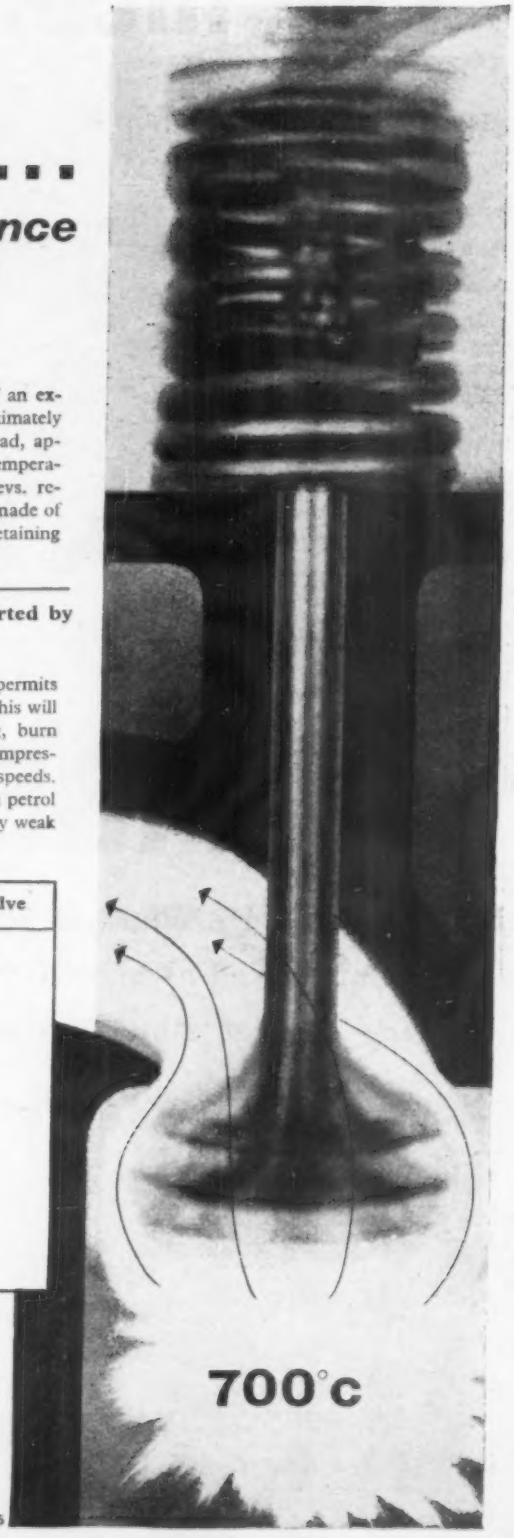
Engine speeds
Engine speeds in excess of 4,000 r.p.m. are common in modern cars. At this speed a valve opens and closes approximately 2,000 times a minute. The opening is caused by the action of the cam, but the closing is controlled *solely* by the valve spring.

Valve Temperature
The average temperature of an exhaust valve head is approximately 700°C.; of an inlet valve head, approximately 250°C. High temperatures combined with high revs. require that valve springs are made of top-grade steel capable of retaining its elastic properties.

Maximum engine revs. are controlled by the force exerted by the spring when the valve is fully open

Valve Bounce
At *high* revs, a slightly weak spring will permit valve bounce. This allows the exhaust gases to escape on the power stroke, and lowers efficiency. If a spring overheats it may take on a set—i.e. become shortened in length. This reduces the force exerted by the spring and so permits valve bounce at *lower* revs. This will in turn increase overheating, burn out the exhaust valves, and compression will be lost at *all* engine speeds. Thus poor performance, high petrol consumption can be caused by weak or worn valve springs.





For performance and petrol economy, valve springs need to be replaced regularly—always, as a matter of routine, when decoking. It is in your own interest to specify Terrys, the most efficient and reliable valve springs made.

TERRYS AERO VALVE SPRINGS
The experts' choice
HERBERT TERRY AND SONS LIMITED, REDDITCH, ENGLAND

POPULAR with tourists in summer, Winnats Pass, in the Peak District of Derbyshire, is a forbidding picture when frozen sleet and snow make treacherous its steep and winding road

Correspondence

Friends in Need

Thanks to Monte Competitors. My wife and I wish to thank all the Glasgow contingent in the Monte Carlo Rally who stopped to offer help to us when our Singer Gazelle overturned some 34 Km from Boulogne. This was especially appreciated, as none of them had any time to spare on this very tight control.

Norwich, Norfolk. F. J. A. VIVIAN.

Austin A.55

Happy, But for the Petrol Gauge. With reference to your road test report of the A.55 (3 January), after some months' experience of this model without overdrive one can only testify to the excellent all-round performance, especially in hill climbing and economy in petrol. Acceleration is excellent and general riding comfort of a high standard. Why, therefore, must such an important component as a fuel gauge be so unsatisfactory?

The first one was taken out and replaced by the local agent, who charged me with the cost of the replacement unit plus the labour, of course, but has since credited me with the cost of the gauge, presumably on receipt of an allowance by the supplier of the component.

There were other alterations, and the present position is that when the needle reaches low level I put in four gallons, when the needle immediately goes to the top level which is supposed to register 8¼ gallons, so it is rather difficult to discover how much petrol the tank is holding.

I notice that the advertisement of the firm supplying the fuel gauge is very honeyed regarding their own products, and it does seem a pity that the motor trade cannot put its own house in order and be responsible for any imperfect component, the cost of which, after all, has been included in the price of the car.

Two other extras which have to be supplied by the purchaser are fog lamp and reversing light, as I find in fog that the dipped headlights are too strong for safe driving, and in my opinion a reversing light is essential.

As to fuel consumption I am getting 37 m.p.g. on long runs and an overall consumption of 31 m.p.g. for short and long runs combined.

Shalford, Surrey. J. A. GRAVES.

Street Lights, Trafficators . . .

. . . *And More Rest in the Monte?* I have observed recently that the Minister of Transport is asking local authorities to consider more standardized forms of street lighting. Uniformity would be a great blessing and I would suggest amber lighting for A roads, blue or green for B roads, and white for unclassified roads and side streets. I find the amber lighting gives a very good and even spread of light and is not dazzling. The

Opinions expressed on these pages are those of our correspondents, with which The Autocar does not necessarily agree. Letters intended for publication should be addressed to the Editor, The Autocar, Dorset House, Stamford Street, London, S.E.1.

Correspondence

Minister is also to consider further regulations on traffic indicators. Such regulations should, of course, have been formulated before firms brought out the multiplicity of designs and colours available today. I would suggest (dealing with the flashing type only, not the semaphore arm type) that at front and rear the flashers be of amber colour only and that each one has its own glass—not be incorporated within some other light.

I feel an improvement in the organization of the Monte Carlo Rally would be a break for rest and sleep one night. From the safety point of view it is most undesirable to have cars driven by men (or women) who are dead tired and suffering from extreme lack of sleep. Also, a car may be kept going that would fail to start if left in the open all night. I would suggest that on what, at present, is the second night on the road, there should be a fixed break of, say, eight hours. Each competitor would leave in the morning exactly eight hours after he clocked in the previous night, and no access to the car would be allowed during the break. If he were running late on arrival at night he would leave late by that amount in the morning. It would also find out the cars that won't start from cold! No doubt there are many difficulties, such as hotel accommodation, but it might, some day, prevent an outcry to have the Monte Carlo Rally abolished, owing to the dangers to the public of tired men at the wheel.

Bromley, Kent. J. M. SLEIGH.

Privilege Parking

For Invalids and Doctors? I should like to bring to your attention a matter connected with the new parking laws which is of importance to many motorists. I have seen it suggested that doctors should be issued with special windscreen discs permitting them to park their cars for an unlimited time without charge. Could not this apply also to the many disabled or partially disabled motorists who are forced to rely on their cars in order to be mobile? Much as one abhors the all-day parker, it would be a real hardship, both physically and financially, for such people to be constantly moving their cars.

Belfast, N. Ireland. COLIN MCMEEKIN.

Advice Welcomed

Heading for Czechoslovakia. My wife and I plan to visit Czechoslovakia this summer for an 18-day holiday. Could any reader help us with advice? We have considerable experience of motoring abroad, but this will be something new to us.

Hyde, Cheshire. VICTOR A. WARREN.

[Letters will be forwarded.—ED.]

A 1932 Lea-Francis

When and Why Was It Modified? I was most interested to see my car mentioned in N. J. White's article "How far have we progressed" (17 January)—I am the proud owner of the 1932 Lea-Francis KV1495 tested by *The Autocar* in that year.

The car has been considerably modified in the course of the years, although I am unable to find out why or when, and I would appreciate any information which readers may be able to give on this point. It now has a 1½-litre 4ED Meadows engine of the twin carburettor Brooklands variety, coupled to a standard Lea-Francis 12/40 gear box. The change on this box is slower than that on the original, and the ratios are not as good, 45 m.p.h. being the safe maximum on third gear, and 81 m.p.h. the theoretical safe maximum on top gear. (The axle ratio is unaltered at 4.7 to 1.) Other modifications are to the radiator, which now slopes rearwards at 10 deg, and bonnet and scuttle have been altered to match the radiator angle. The fact that the car is the original 2-litre is confirmed by the chassis number (18500).

Performance is good, although I suspect that the acceleration is not as good as the original. I can endorse all the road test remarks regarding handling and road holding. The "feel" conveyed by the steering is quite remarkable, and the most slippery surfaces may be approached secure in the knowledge that the car will let you know—almost in advance—and skids are brought under control almost before they have started. I suspect that rear wheel adhesion is a good deal better than most modern cars, too—in 3 years and 40,000 miles of motoring in all seasons I have *never* needed or thought I was going to need the snow-grips that I carry in wintry conditions. In

SNOW MAN seen in the Strand, London, where a parked bubble-car thickly coated with snow provided a suitable base for a nimble finger tip

that mileage I have had three major failures—two half-shafts and one gear box main shaft which broke at the spigot—not bad for a 25-year-old car. I must admit to an engine overhaul shortly after I had the car, but this hardly counts as a failure—when buying a car so old one expects to find some things wanting.

One thing which has always puzzled me—did your tester wear diver's lead-soled boots to test the brakes? I think 40ft from 30 m.p.h. is a more realistic figure than 28ft. It is the figure given for other "Leafs" with the same brakes used at about the same time, and is in better agreement with present results. The brakes are still adequate for modern conditions providing one drives sensibly, and the hand brake is a real emergency brake operating an entirely separate set of linkages and shoes.

Ludlow, Salop. P. W. PRINGLE

[Letters will be forwarded.—ED.]

Specialized Spares

Sumps for Mountain Roads? F. G. Hails (17 January) mentioned garages with specialized stocks of spares. May I add to this a certain garage in Llandrindod-Wells, which in September had a stock of at least a dozen sumps for Austin-Healeys? We required one for an M.G. Magnette, but they patched us up all right.

Fareham, Hampshire. M. R. C. PARR.

Suspension Damping

Incidence of Aeration. In your article "Suspension Damping" (24 January) you state that telescopic dampers are less affected than lever type by aeration. We find it difficult to accept this statement since, in fact, in the lever type the air and oil are completely separated, and the damper is simply pushing a solid column of oil from one cylinder to the other through appropriate valving. Thus aeration is a virtually unknown phenomenon unless the damper happens to be faulty.

WILLIAM ARMSTRONG,
Chairman and Managing Director
Beverley, Yorkshire. Armstrong Patents Co., Ltd.

Perfect Filling Station

"Yet to Find One in Ontario." I was quite amused upon reading the article about the "Perfect filling station taken for granted in America" (3 January). I have been driving here for six years, and I have yet to find one of these stations which Mr. D. Hewitt, of Hamilton, Ontario, claims. I am the proud owner of an M.G. Magnette, and any oil changes, lubrications and the like will be done only by an authorized B.M.C. garage; I have had too many griefs with the filling station service on one of my previous cars, which included the removal of the differential plug by the use of vice grips, thus stripping the plug head, over-filling the battery cells, thus causing acid to go everywhere, and over filling of the transmission, thus causing oil to leak into the clutch and cause slipping. I hope you see why I have no use for the filling station, in fact most of them cannot even serve petrol without spilling it on the car, and scratching the

paintwork with the metal nozzle. When they clean the windshield usually they use a dry paper towelling which naturally scratches the glass if there is any grit on it. Most stations in the big cities have clean wash rooms, however, but outside the big cities the picture certainly changes.

No doubt Mr. Hewitt deals with a reliable filling station and I should consider him very fortunate, as in my experience, as well as those of my friends, filling stations here certainly need higher quality personnel as well as great improvement in their present services.

Toronto, Canada. J. R. HOLWAY.

Main Road Halts

Increased Danger in Winter. Stopping and parking on main roads is dangerous at any time, besides being a great impediment to the flow of modern traffic. In conditions of icy roads I consider this practice little short of criminal.

Fulford, York. WILLIAM ARMSTRONG.

Kirkstone Pass

Power-Weight Ratio of an Austin. I feel that Mr. Hall-Craggs (17 January) is under a slight misapprehension about the power-weight ratio of the 1934 Austin 10. With a dry weight of about 15 cwt, and a rated output of 21 b.h.p., the model compares unfavourably with its current equivalents in this respect, typical examples of which have a power-weight ratio of about 40 b.h.p.-ton *laden*.

What it did possess was a really low bottom gear; and since the car by itself would have been entirely incapable of climbing Kirkstone in second gear, I imagine that the extra weight of the trailer would have passed unnoticed.

No; it is the low power-weight ratio of these cars—robust construction coupled with an engine possessed of a marked unwillingness to rev—that has established their enviable reputation for longevity.

Croydon, Surrey. J. B. ROSCOE.

"Could Never be Unnoticed." I read with interest Mr. Hall-Craggs' letter (17 January) regarding Kirkstone Pass, unnoticed by his wife who made the journey three times in one day from Patterdale to Windermere

Whilst I am full of admiration for the 1934 Austin Ten Four, I would not be too happy with any driver who took this model, plus a trailer, to a height of nearly 1,400ft in two miles, with a one-in-four section towards the summit and when asked about the climb said, "What hill?"

I am a regular user of Kirkstone Pass, and always enjoy the run up from the Patterdale side, but could never pass it unnoticed, even in a 100 m.p.h. sports car.

Arnside, Westmorland. T. A. PEARSON.

SMOOTHING THE GAS PASSAGE

SHORTCOMINGS at low revs of the medium and low-powered popular car are mostly blamed on "carburation," which casts a not entirely merited slur on the carburettor. The carburettor is, by car manufacturing standards, a precision instrument, but often the same cannot be said of the inlet manifold, although that is an integral part of the induction system.

Mr. G. A. Mangoletsi, of the G.M. Carburettor Co., Ltd., Cranford Works, Malt Street, Knutsford, Cheshire, has been experimenting with existing production manifolds in an effort to remove more of these "carburation" faults.

This is a logical step forward from his previous invention, the G.M. manifold modifier, which was described in *The Autocar* of March 23, 1956, and is a further realization of his aim, which can be summed up as the maintenance of a dry manifold. The modifier, it will be recalled, interposes a lipped venturi at the inlet flange, the purpose being to deflect the mixture back into the centre of the air stream after it has been sprayed on to the walls by the deflecting action of the butterfly valve in the carburettor. Anyone who has used a paint spray, or who has seen one in use, will appreciate what happens when the mixture impinges on the manifold wall; it turns once again into wet petrol as the globules cohere. The lip of the venturi re-atomizes the fluid.

Elsewhere it was good sense to do everything possible to speed up the passage of the mixture, by machining and polishing, sometimes opening up the pipe a little and always paying particular attention to centralizing the ports; a bad register at the flanges will both oppose the mixture passage and deflect it in haphazard directions.

The polishing achieves a further object—internal roughness of the manifold is retentive of the spray and helps to promote the deposit of carbon. Carbon absorbs petrol, and absorption and wetting are wasteful. Hot-spotting is a method of reducing wetting, and it is a measure of Mr. Mangoletsi's success that he has found that he can substantially reduce the hot-spotting on some engines. Modified hot-spots are, therefore, available with the manifolds for certain makes. Finally the flanges are re-machined and the modified manifold is ready as a replacement unit.

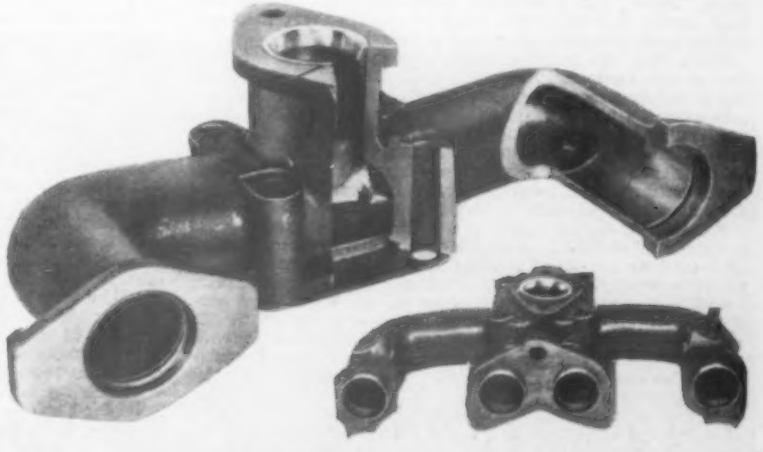
What has been gained? Notably, refinement of running at the bottom end, but also smooth idling and pulling away from low speeds in high gears, and elimination of flat spots. Cold starting is notably improved and the warming-up period is shortened. Greater economy is possible with unchanged driving methods ("before-and-after" tests with a Morris Minor gave 47.6 m.p.g. against 43.4), or more performance can be extracted from the engine (the same Morris gave 0-30 m.p.h. in 11sec against 14.1sec). In fact, Mr. Mangoletsi feels that the modifications could safely be claimed to give two-carburettor results without the snags that arise with carburettor duplication.

This is a thoughtful approach to a problem which, for obvious reasons, quantity car manufacturers are unlikely to tackle. The G.M. Carburettor Co., Ltd., is well known (its gas carburettors are used for bench engine running by several of the car manufacturers) and its research and experimental facilities are utilized by the Atomic Energy Authority.

One apparently contradictory result of the modifications has been observed during experiment—an engine will often pink where it did not do so before. The reason is that the improved atomization of the mixture reaching the combustion chamber results in quicker flame propagation, thus developing maximum pressure on the piston earlier and so producing the characteristic pinking noise. The ignition can be retarded to suit the new engine requirement because good combustion reduces the need for ignition advance.

Mangoletsi manifolds are exchange units, being despatched to customers in a special packing ready for the return of the old manifold, which is then modified. They should preferably be installed with new gaskets, as any air leak will upset results. They are available for the following cars and at the prices quoted:—

Austin, A.30, A.35, A.40, A.50, A.55; **Ford**, Anglia 100E, Prefect 100E, Consul Mk. I, Consul Mk. II; **Morris**, Minor Series 2, Minor 1000, Oxford o.h.v.; **Wolseley**, 1500, 15/50: £5 17s 6d. Modified hot spot, A.30 and A.35 12s 6d, A.40, A.50, A.55 17s 6d. **Standard**, Eight, Ten, £6 10s. **Ford**, Zephyr Mk. I, Zephyr Mk. II, **Vauxhall**, Victor, £7 2s 6d.



A B.M.C. manifold, cut away after modification. Lipped G.M. modifiers are seen in inlet and outlet ports. Below: Vauxhall Victor manifold after modification (illustrated on a smaller scale)

ONE MAN'S MEAT . . .

The Story of Sunbeam Rapier

No. 16 in the Monte Carlo Rally

By PETER GARNIER

Resting transversely under the soothing balm of an eye-pad, Peter Jopp resigns himself to the tender mercy of his co-drivers

IF we'd had S. Moss with us in the Sunbeam Rapier, as Norman Garrad had originally intended, we might have won the Monte Carlo. In fact, I think probably we would, for the appalling weather that prevailed throughout would have suited his strange tastes. The story of the on-off-on Argentine Grand Prix is, however, well known; with Drivers' Championship points at stake, he wisely decided that his duties lay in South America, so he drove there and scored a remarkable victory in the Cooper.

As things turned out, we couldn't have been a better-matched crew. There was Peter Jopp, who was to have been there anyway, and whom we christened the "Poor Man's Fangio"; Bill ("Doc") Deane was press-ganged by Norman Garrad at the last moment, to be the third member, and brought his dispensary with him, providing pills for almost every purpose. The intention was that Bill should drive as much as possible, in order to save Peter and me for the ordeals of the 650-mile Classification Test at the end, in which he would not be even a passenger.

We put our resident racing driver at the wheel for the first shift and, to a chorus (from within the car) of "Mush, Pete," we set off at 10.17 p.m. into Oslo's snowbound suburbs. We hadn't been "mushing" for long before a heavy, driving snowstorm started—and proved how invaluable our wide, Perspex snow-deflector was going to be. There was no build-up of snow on the screen and, subsequently, it kept the screen clear of mud when we were following heavy lorries on wet roads. Apart from unceasing ice and snow, the early part of the Rally passed without incident.

The printed Rally programme still showed Stirling Moss as being in the car; the original entry had been made in his and my names. This was subsequently to provide quite a bit of amusement, and reflected glory! When we pulled into the Copenhagen control, Pete was fast asleep in the back, entirely smothered in an overcoat. As Bill and I took the road book into the control, Stirling's public pressed round the car, muttering "Moos" and holding out autograph books. So we told them sternly that Mr. Moss had been working very hard and was tired; on no account were they to wake him.

While Pete still slept, I drove through Denmark, with its fine, straight roads and frustrating speed limit of 70 k.p.h., and into Hamburg. Here we were each given, in addition to a first-class supper, a neat canvas bag that contained almost everything you could want . . . food galore, drink, sweets, cigarettes, chocolates and goodness knows what else. While Bill drove off on the next stage, Pete, sitting cross-legged in the back, proceeded to unpack his parcel, spreading out its contents all over the back seat like a child on Christmas morning.

We were led from the town by a police car, after being warned at the control that the local stretch of *autobahn* had been blocked by a multiple pile-up of cars and lorries. Just where they led us we weren't sure, but they dumped us at a level crossing with traffic jams on either side of the gates. When these were opened, we drove across the lines to join the jam on the far side—but, before we were clear the gates closed again, with the Rapier in the middle. Bill eased back until we were touching the gates behind us . . . and an enormous, black, snorting goods train thundered by.

The drive to the next control—at Hanover—was one of the most unpleasant bits of the Rally. We eventually found the *autobahn*, more by luck than anything else, and turned on to it in a heavy snowstorm that cut visibility down to a few cars' lengths. The central island of the twin-track road was deep in snow, and, in the curtailed head lamps' beam, the road looked like a vast, featureless, white desert. To add to the difficulties, there were great Mercedes-Benz lorries, towing trailers, that appeared from nowhere—stationary, travelling with us, or coming towards us!

Every now and again, the lamps would pick out a curious and frightening effect. The wind, blowing straight across the road, was driving powdered snow through gateways and gaps between trees, the snow hurtling across the road to form a drift on the far side; these "rivers" of snow would sometimes be a couple of feet deep, and appeared to be solid—until we came to them, and drove through without trouble.

At last we emerged from the autobahn, and the snow eased—leaving us behind schedule and with 120 km to cover in slightly less than a couple of hours. Mercifully, there were only the icy roads to worry us after that, and we reached Hanover on time. Peter, in the meantime, had put his toys back into the "stocking," and was sleeping peacefully.

After the *autobahn* debacle, things were easier for a spell. We had listened to the B.B.C. broadcasts on the wireless thoughtfully provided by the Rootes Group, and gathered that the Glasgow starters were in for a thin time; the roads in Kent, they told us, were blocked by snow. We each uttered a silent prayer that they might continue that way; it was one way of getting rid of the opposition!

During the following evening—the second day, that is—we were on a straight stretch of road when Bill announced that Peter Harper's Rapier was coming up astern. Shortly it passed us, so rather than chase it we decided to resort to subterfuge. A few miles ahead, we had to take a right turn on to a big, main road—but the map showed a very small road leading off to the right and taking a short cut to the new road. Quickly I told Pete to take the next turning to the right. "What, this?" he asked, turning down a cart track. "Yes, go on," I said, "and get a move on."

We passed through two farms—and frightful moments of doubt about my short cut—before we emerged on the main road . . . about a quarter of a mile ahead of Harper's Rapier. It didn't help much as he was past us again soon, but it did our morale a heap of good—even more when, at the next control, Harper asked: "What's this London Rally navigation you've been up to?" Team-mate Harper's Rapier which had also started from Oslo, was ultimately to become highest-placed British car—finishing fifth.

We crossed the French frontier still with a clean sheet, and checked in at Gerardmer. From then on we knew that our light-hearted drive was to become serious, and that the pleasant chats we had been having with other competitors at controls were to come to an end. We met Peter Harper, Peter Elbra and Reg Phillips, had a quick coffee-and-Cognac and dashed out of the control—with the Poor Man's Fangio at the wheel.

Pete did splendidly and, by half-distance, we were 16 minutes ahead of our slow average—a margin for which we were to be thankful very soon. We were going fairly fast downhill when the car slid outwards on a right-hand corner . . . and landed smartly in a snow-bank; anyone who thinks snow-banks are soft is under a misapprehension. I came into contact with the windscreen, which I thought I had broken. I turned the torch on my face, and my face towards the "Doc" to enquire whether I was bleeding to death . . . and suddenly there was an almighty thump as a Volvo rammed us in the stern.

We nipped out of the car before anyone else should come along and join the party and, I must say, I thought the Rapier would be too badly damaged to continue; it had been a very, very heavy thump. While Bill dashed up the road to dis-

courage further visitors, Pete and I got the Volvo clear—it was away in five minutes or so—but it took us all our time in hand to extricate the Rapier which, remarkably, had suffered no more than a dented luggage locker lid.

We continued, somewhat subdued and, before we had covered a mile, came round a corner to see, in the head lamps' beam, a Triumph with its front poked through a snow-bank and peering dangerously over the edge. We all-but nudged it over, and thought of the perilous game of shove-ha'penny that might ensue. Luckily it didn't.

We had nothing in hand when we reached the St. Claude control and so had to refuel and inspect damage after checking in. As it happened, the St. Claude to Chambery section was difficult, and we could ill afford the time. We were not helped by a humorist who had turned the "Rallye Monte Carlo" signpost outside the town so that it faced the wrong way; we did a couple of laps of someone's back yard before we discovered the jest . . . and failed to appreciate it.

Then, after the Chambery control—in fact, a little south of Grenoble—there was the incident of the gendarme on D.5 at Tavernolles. We were heading south towards Vizille, which was clearly marked on the route, when we were directed to the left, and up a very small road between buildings. We became involved in a maze of lanes and cart-tracks running through orchards and farmyards. Fortunately, a few cars had been through ahead of us, and there were wheel tracks in the snow. Peter Harper had not been so lucky; he had arrived first on the scene and had had to blaze his own trail.

As it was, I doubt very much whether anybody other than the gendarme ever intended this section to be included. It was far, far trickier than the worst "night-navigation" section in deepest Wales—and, the roads were not marked on the map. Far below us we saw the lights of a town, which we took to be Uriage—correctly, as it turned out—and we headed, regardless of the state or size of the tracks, downwards towards the town.

At last we wound our way down into the cluster of lights, and took N.524 to Vizille, but, what with the initial delay at St. Claude and the gendarme's little joke, we lost about 20 minutes on this section. We gave Pete a rest at the wheel, and arrived at Gap without further loss of time, digging him out for the last two sections to Monte Carlo.

At long last we peered over the tops of the Alpes Maritimes to see the blue of the Mediterranean below—a sight that has gladdened the hearts of Monte Carlo competitors so many times—and swept through the streets to the finish of the road section. As we pulled up, there was an ominous and loud noise from under the bonnet. "Water-pump," I said; "Clutch," Pete argued. There was nothing we could do about it, so we put the gallant Rapier into the *parc fermé* and went off to bed. In fact, there were 59 of us who had qualified to compete in the Classification Test.

In the evening we retrieved the car, with only half an hour in which to work on it. I filled the greaser on the pump and screwed it in three times, and started the engine. The noise persisted, and Bill Allerton, Lucas' competition manager, diagnosed it as a failed dynamo bearing. There was no time to change the dynamo, so we borrowed a spare from Allerton and a battery from Alan Fraser, whose Singer Gazelle was out of the Rally. We reached the starting line just in time, but the officials decided to disqualify us for being late. In fact, we were not late—we

Slightly dog-eared, we reach Monte Carlo (left to right: Jopp, Garnier and Deane) . . . to sleep for a while before taking to the hills again

pulled up towards the line right behind the car that was due to leave in front of us—but it was only through Norman Garrad's patient arguments that they agreed to let us go. Even so, as with Peter Harper and one or two other competitors, they gave us the wrong route card—Category 2, instead of Category 1.

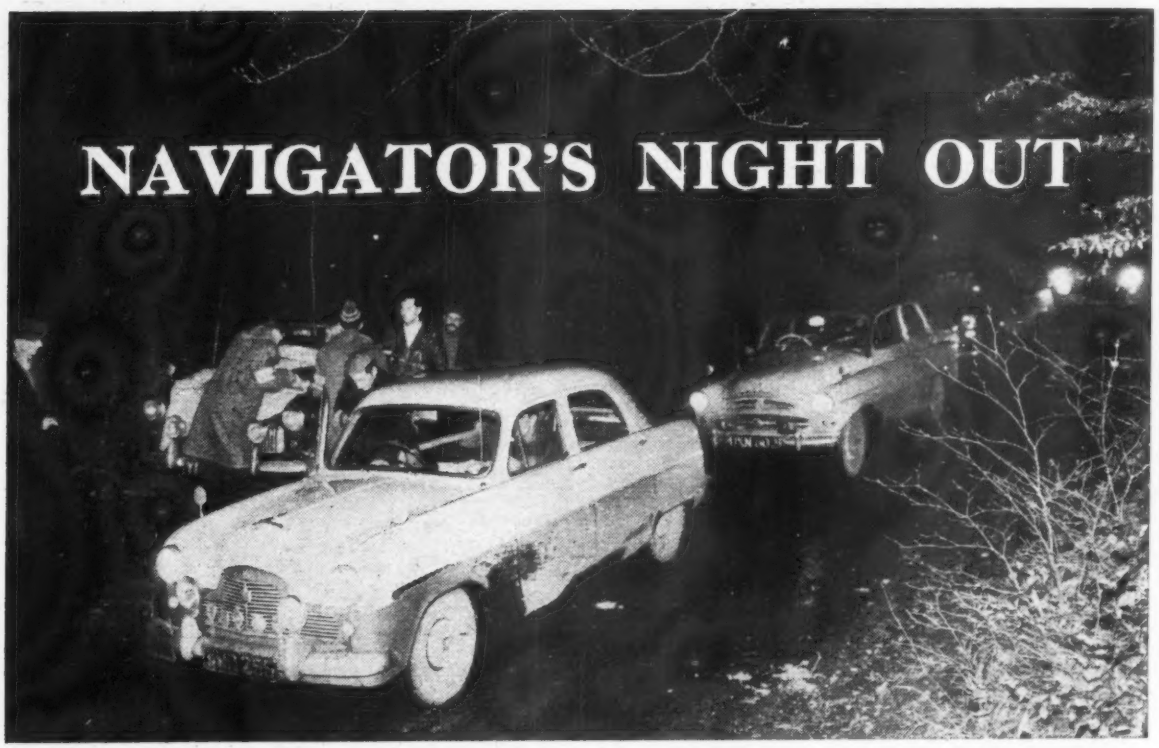
Before we reached the first control, the noise from the dynamo had become so loud, and the vibration so severe, that the needles of the instruments on the dashboard were aquiver, and everything loose in the car was fizzing. Soon the ignition warning light went on—and we knew that we had four hours' motoring before the battery was flat.

We hurried on, and reached the first control some 18 minutes late, so far as I can remember. There was a tolerance of 30 minutes' lateness at this control, and Peter Harper, fastest of all, had been six minutes late, so we weren't worried. When we were getting comparatively near to the second control, however, the lights grew dimmer and dimmer, and reluctantly we stopped to change batteries. We worked like lightning on the job, and took about ten minutes—all to no avail. There was a late allowance of 11 minutes at the next control; we were 13 minutes late, and that was that.

In the final classification, we had dropped seven places through our retirement. Had we not had a go at the test, and decided to retire to bed and sleep off our exertions, we should have lost exactly the same number of places. And, had we finished the test, Rootes might well have carried off the Manufacturers' Team Prize. Ah well, we tried.

Last day of the road section; the front of the Rapier looks little the worst for wear after 1,800 miles of ice and snow, but the rear had been disfigured by a Volvo

NAVIGATOR'S NIGHT OUT



Downhill approach to time control four on the way to Ferryfield with J. Reynolds (Ford Zodiac) and A. M. B. Piggott (Skoda) checking in

National Cats' Eyes Rally Won on Road Section

WIDESPREAD snow on the eve of the National "Cats' Eyes" Rally organized by the Thames Estuary Automobile Club promised to make the event as tough as the last one in 1956—it was not held last year because of petrol rationing—but rain during the night cleared the snow, and the 158 competitors had mainly dry roads. Entries were divided into three groups—production touring, production sports and specially modified cars.

This year there were two starting points—Dunstable and Woodford—and from these points drivers had a fairly easy main road run, with a single route check on London Bridge, to Wrotham in Kent. From here, the main business of the Rally began with an excursion through Kent as far south as Ferryfield, near Lydd, taking in part of East Sussex and returning to Wrotham, carrying on then through to the finish at Southend by way of the Blackwall Tunnel. This gave a total distance of about 400 miles, which included 27 time controls and 70 route checks which had to be found from six-figure references on Ordnance Survey maps.

Time-keeping was done by issuing pocket watches to each competitor, a system which worked very well—the only hitch being when that given to A. G. Miles (M.G. Magnette) was set an hour late at the start.

The Rally was divided into eight sections from Wrotham, beginning with an easy 12½-mile closed road to Bearsted on A20. Section 3 was straightforward map reading, in which a number of route checks had to be visited and identified in the order chosen by the competitors, and it took them north from Bearsted, near Faversham, then south not far from Ashford and Tenterden to finish at Lydd. On this section a time check situated in a narrow downhill road amid woods and approached blind, caused some competitors to make desperate attempts to stop in time. Here D. F. Rayner (Sunbeam Alpine) was already very late and W. E. Griffin (Ford Anglia) was also behind schedule. A. R. Wheeler (Berkeley), too, was 20 minutes late.

In spite of inviting notices, nothing more sustaining than route cards came out of the control at Wrotham. Here, collecting his, is the winner K. Faire (Riley 1.5)

This was followed by section five, a short closed route of about four miles to the supper stop at Ferryfield Airport. K. Faire, the eventual winner in a Riley One-point-five, remarked that so far he had found it quite difficult, particularly in deciding the order of visiting route checks.

After Ferryfield, which the first competitor left at 11.34 p.m., a short closed route got the competitors back into the mood again ready for section six, which turned out to be the most difficult in the whole Rally.

This led westward, beginning with a fair amount of running on unmade, muddy lanes in Romney Marshes, with occasional well-filled dykes beside the road to trap the unwary. It was divided into short sections, some as little as six miles long, with numerous route checks between time controls, each to be covered at an average speed of 30 m.p.h. Altogether there were 44 map references to be plotted and visited within 82 miles, which called for very accurate and alert navigating and hard driving.

Confusion reigned at one point in particular, where competitors could be seen driving rapidly in opposite directions on the same stretch of road in search of their turning. The night was clear with a full moon, which helped a little. This sec-

tion actually ran north of Rye and Battle and finished north-west of Hailsham. At time check No. 12, fairly early on in this section, cars were passing well out of order, and some were missing.

Towards the end of the section, Pat Moss, accompanied by Ann Hall in a modified Morris Minor 1000, took a wrong turning and became bogged down. Despite frantic waving of torches, two other competitors who had been led astray ran into the back of the Minor. A tractor was needed to get it out again and Pat Moss retired, although she appeared at the final control.

This was followed by the "Eight Clubs" section, which brought competitors back to Wrotham, west of Tunbridge Wells and east of Sevenoaks. The first competitor was back again at Wrotham at 3.50 on Sunday morning.

Section eight, which followed, was easier, with a set average speed, leading south of Dartford through the Blackwall tunnel, passing south of Chelmsford and then on to the control at Southend Airport. This part, driven in a fiery sunrise and growing daylight, was followed immediately by two tests on the sea front at Southend which, although they were used only to decide ties, had to be carried out by all competitors.

These were fairly simple, the first a braking and reversing test, in which competitors starting from line A had to stop astride line B and reverse into a bay marked by barriers. Both nearside wheels had to cross a line marked parallel with the kerb, and there were penalties if they struck the kerb. Most found it quite easy, but a number either did not cross the line or touched the kerb. Competitors passed immediately to the second test in which, against the watch, they had to enter two "garages" in any order, but in opposite directions, and then carry on to stop astride a second line without crossing a third.

Among fast and neat performances were those of H. E. Hilliard (Austin A.35), L. Roberts (Renault Dauphine), and R. D. Witheyman (Standard Vanguard). Very quick was A. R. Wheeler (Berkeley), who took advantage of his good steering lock to drive directly from one garage to the next without reversing. The local police were intrigued and enthusiastic about these proceedings.

This brought the Rally to a close, apart from the run back to the final control at the airport, where competitors enjoyed breakfast, or lunch, according to their arrival time. It had turned out to be a personal triumph for K. Faire and Captain D. Allen in their Riley One-point-five, the only competitors with a clean sheet. Their closest rivals were D. H. W. Thompson (Ford Anglia) and A. T. Fisher (Austin A.35), who each lost 20 points, Fisher winning the "Special" class.

Organization was very good and everyone seemed to have enjoyed their night's motoring. The "Cats' Eyes" Supper follows soon on 1 March, at The Weir Hotel, Rayleigh, Essex. Tickets are available from Mr. K. Sloman, 116 Woodfield Road, Leigh-on-Sea, Essex.

Provisional Results

Cats' Eyes Trophy (best performance): Riley One-point-five (K. Faire), no marks lost. Navigator's award, Capt. D. Allen.

Class winners: Production touring cars up to 1,300 c.c.: Ford Anglia (D. H. W. Thompson), 20; 1,301 to 1,600 c.c.: Wolseley 1500 (P. A. Diggins), 30; 1,601 to 2,600 c.c.: Ford Zodiac (J. Reynolds), 135; over 2,600 c.c.: Austin A.105 (H. P. Deschampes), 335; Production sports cars up to 1,300 c.c.: Volkswagen (N. Hickmet), 540; 1,301 to 1,600 c.c.: M.G.A (C. D. Boulton), 55; 1,601 to 2,600 c.c.: Triumph TR3 (A. Newsham), 50; **Special cars:** 1, Austin A.35 (A. T. Fisher), 20; 2, Ford 100E (W. H. Morgan), 70; 3, Austin A.50 (D. C. E. Johns), 80.

Team awards: To be announced.

Ladies' award: no finishers within time limit.

A. A. Arnold (Ford Zephyr) at time control twelve during the tough section after Ferryfield

C. D. Boulton (M.G.A.) makes sure of being penalized in the parking test at Southend on Sunday morning. The tests were only tie deciders and he won his class

M. V. Quartly (Volkswagen) and K. J. Ward (Berkeley) at the Bearsted time control

READERS who wish to submit questions are requested to enclose a stamped, addressed envelope and address their letters to *The Autocar*, Dorset House, Stamford Street, London, S.E.1, marking the envelope "Readers' Service" in top left corner. **Queries should not be submitted which are the normal business of manufacturers' service departments.**

Persistent Rumble

My 1954 Peugeot has developed a persistent rumble, which can be felt as well as heard through the structure. It is evident on both drive and over-run, and also when the engine is "dead." Presumably it emanates from the rear axle, yet there has been no accompanying increase in axle gear noise. I wonder whether you have any experience of this car which might assist in a diagnosis. I am reluctant to have the worm-drive axle stripped locally, since these days most garages have no experience of them.

Bristol. *S. J. B.*

INTEGRAL body and chassis structures often act like musical instruments, amplifying small noises to alarming proportions and spreading them through the unit so that they are difficult to locate. Before you dismantle the axle assembly, check your *front* wheel bearings. To do this, jack each wheel in turn and spin it—even if there is no apparent shake or slackness at the wheel. If one or both races are faulty, the spinning wheel will give you audible evidence. Until 1954, incidentally, the Peugeot's front wheels were mounted on ball races—more recently on tapered rollers.

Some rear axle noises are carried forward on this car by the torque tube (which encloses the propeller shaft), so that they may seem to come from the gear box. If you do have the axle stripped, have this done by a specialist in the make, who will know the proper settings and clearances. Remember, too, that the makers specify a vegetable-base oil (such as Castrol R) for this axle.

Canadian Visitor

I am at present enjoying a visit to this country from Canada, and it would be very convenient if I could obtain permission to drive my father's car. I wrote to the R.A.C. to inquire if my current Canadian driving licence is valid for the U.K.; they informed me that it is. To confirm their advice I inquired of the local police who, after much searching, produced an order stating that, providing I was in possession of a driving permit for any country, I would not require a British licence for a period of twelve months. I would much appreciate your advice, and incidentally, what will be my position should my Canadian licence expire during my stay in this country?

Yeovil, Somerset. *J. W. (Mrs.).*

THE INFORMATION you were given by the R.A.C. and police is quite correct. A "visitor" to this country can only stay for twelve months, and for this period you can drive on your Canadian licence—provided it is valid for the whole of that time. If it should expire during the twelve months, then you can apply to the licensing authorities for a "Visitor's Licence" to cover you for the remainder of your stay.

Disabled Driver

I am disabled in the right leg and wish to drive a car; I can have hand control, or take advantage of the new two-pedal control available in the Standard or the Anglia. Is two-pedal control reliable, and something in which one can place one's trust?

Glasgow, S.W.1. *J. W.*

TWO-PEDAL CONTROL would probably suit you admirably, as you could operate the brake and accelerator with your left foot, with adjustment and, if need be, rearrangement of the pedals. With the systems you mention, the clutch works automatically as you move the gear lever from one position to another, and should you come to rest in any gear, then the clutch automatically disengages as the car reaches what would normally be stalling point with an orthodox clutch.

Although fairly new, these systems have proved to be thoroughly reliable. Indeed, the principle is very similar to the vacuum-assisted mechanisms fitted to disabled drivers' cars.

FOURTH BRITISH CARAVAN ROAD RALLY

THE Caravan Club's Fourth British Caravan Road Rally is to be held during the weekend of 25 to 27 April, and Brighton Corporation is co-operating in the organization of the event. The aim of this competitive rally is the improvement of the towing and road-holding qualities of caravans; the æsthetic side is to be looked after by a *concours d'élégance* held on the Madeira Drive on Sunday, 27 April, the chief prize for which will be the Brighton Trophy, presented by the Corporation.

There will be six class awards in the *concours*—one for the best amateur entry and one for the best trade entry in each of three classes: caravans costing over £800; over £400 and up to £800; and under £400. The highest award for the road rally itself is the Caravan Trophy.

Although the rally is open to any touring caravanner, entries are limited to 125, in order to avoid road congestion; to distribute competing vehicles over a wide area, up to 25 each will start from Bristol, Luton, Nottingham, Maidstone and Worcester.

Vauxhall Motors are to put one of their car parks at the disposal of the Luton starters, and Mr. A. C. Caplin, the managing director of the company, will flag off the first competitor; at Worcester this task will be performed by General Lord Ismay, and at Maidstone by Sir Garrard Tyrwhitt Drake.

Compared with the previous three road rallies, the night road section is much more severe. Half of the available 60 marks for this section will be awarded for the manner in which sealed supplementary instructions are carried out.

Saturday morning—starting at 8 a.m.—will be devoted to acceleration, fast towing and braking tests, at the completion of which the competitors will go off on a 50-mile day road section; this will include a stop and restart test on a 1 in 8 hill.

Back at Madeira Drive in the afternoon, the competitors will undergo reversing and siting, uncoupling and handling, and driving judgment tests. In the judgment test the competitors will be required to drive accurately through a "snake" of bollards and then between two pairs of hinged panels. Thanks to the co-operation of the Road Research Laboratory, electronic timing apparatus will measure the speed of competitors over the last 5ft of the fast towing test. In the braking test, which is a continuation of the fast towing, detonator-operated mechanism will fire powdered chalk on to the road at the moment each driver presses the brake pedal. The resulting speeds and distances will be used to calculate braking efficiency.

Marks will be awarded on a handicap basis in which the caravan weight in pounds is divided by the engine capacity in cubic centimetres and the resultant figure multiplied by 100. From this "handicap number" a marks percentage will be given. Typical examples are: 200 to 124 get the full 100 per cent, 77 to 74 get 89 per cent, 53 and 52 get 81 per cent. No outfit giving a handicap number exceeding 200 will be accepted.

An outfit in which the van weighs approximately three-quarters the weight of the towing vehicle—considered by many to be the optimum for retaining the maximum comfort without impaired mobility—would be marked according to engine capacity and without any account being taken of gear ratios. A typical case would be a 1,200 c.c. car, weighing about 20cwt, towing a van weighing 15cwt. The handicap number would be 140 with an entitlement to 100 per cent marks. To take full advantage of the handicap allowance the caravan weight could be reduced to nearly 13½cwt.

These figures are interesting in that the competition specifically aims at improving the road performance of caravans. In other words, it appears as if the Caravan Club committee organizing the event think that it is desirable for a caravan not to exceed two-thirds, instead of three-quarters of the weight of the car—the latter is the proportion usually recommended.

Copies of the regulations and entry forms are available from the rally secretary, The Caravan Club, New Oxford House, Bloomsbury Way, London, W.C.1; the closing date is 25 March. Details of arrangements for spectators taking their own vans can be obtained from W. C. Jackson, Vectis, Grosvenor Road, Chichester, Sussex.

Buenos Aires Grand Prix

FANGIO WINS: MOSS, HAWTHORN, COLLINS UNLUCKY

Lomas de Zamora, Argentina.

AFTER Mike Hawthorn had gained a commanding lead in the first heat of the fourteenth Buenos Aires Grand Prix, only to snap a half-shaft on the line when starting in heat 2, Juan Manuel Fangio, second in heat 1, had little difficulty in winning heat 2 and the race. British drivers in general had a bad day, because Stirling Moss was rammed by a special on lap 2 of heat 1, and Peter Collins, when starting, also broke a half-shaft.

The race had been changed to *formule libre* to allow the participation of Argentine-built specials powered with American vee-8 engines. Unfortunately the road-holding and braking of these cars do not always run parallel with their b.h.p. outputs, and thus the circuit, which was the longest and twistiest of the Autodrome circuits, was hardly suited to them. Use of any fuel was permitted, as these specials overheat on petrol. This benefited Maserati, who had stocks of nitromethane left over from last year, but not Moss' Cooper or the Ferraris.

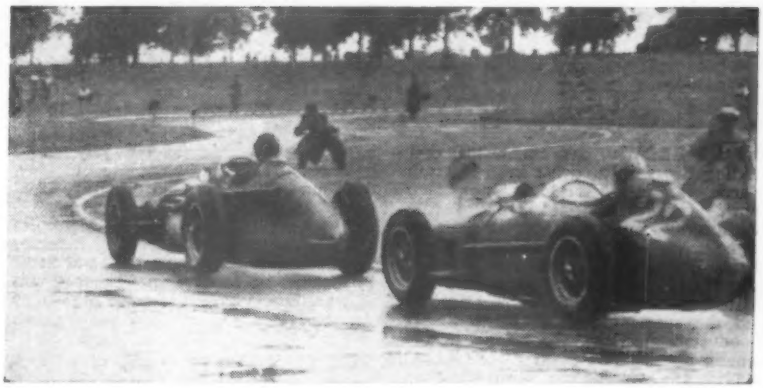
In practice Fangio was fastest, and broke the lap record for the circuit at 78.69 m.p.h. Menditeguy was second best and Moss third, the little Cooper evidently doing well on the tight, twisty circuit. The best special, González' ex-G.P. Ferrari (2.5 four-cylinder) with a Corvette engine, was tenth in 2min 22.6sec, against Fangio's 2min 14.8sec. The two Centro-Sud Maseratis were taken over by Jean Behra and Roberto Mieres.

On race day it rained in the early morning, and there was great indecision in the Maserati ranks as to what tyres to use. Overnight the racing numbers were switched on Fangio's and Menditeguy's cars; Fangio preferred Menditeguy's No. 4. Alf Francis was busy slicing the tyres on Moss' Cooper-Climax.

When the cars were lined up for the start Menditeguy and Behra were nowhere to be found and the race started without them, Godia in Menditeguy's car and Scarlatti in Behra's.

Godia started off, followed by Fangio and Musso, while Bonomi (Maserati) stalled his engine. Collins had the same misfortune as in the Argentine Grand Prix: he broke a half-shaft at the start. On lap 1 Hawthorn (Ferrari) led the race followed by Fangio, with Moss' little Cooper fifth, but on the second lap one of the specials, Iglesias' Chevrolet, apparently followed the Cooper into a corner and braked too late, ramming the British car in the middle when Moss was already half-way round the corner!

During the second lap Menditeguy and Behra arrived, and said they had been told the race was starting at 16.30 instead of 16.00. Godía was stopped right away and Menditeguy slipped into No. 4 Maserati, then a couple of laps later Scarlatti turned his car over to Behra. Meanwhile Hawthorn was leading by some 2sec, and Fangio fell away. Musso, third, was passed by von Trips (Ferrari). Shortly afterwards Trips passed Fangio but then went off the road. At ten laps Hawthorn led Fangio, Musso, Mieres, Menditeguy, Behra, Gould, and González, first of the specials. Ken Kavanagh (Maserati) broke his water pump and retired. Soon afterwards Mieres dropped out with a broken gear box.



In the second heat Fangio was followed very closely by Musso for a couple of laps, until Musso went by into the lead. Later Fangio repassed and won the heat, and Musso was also passed into second place by Menditeguy

Hawthorn won the heat by 31sec, with Musso third and the Scarlatti-Behra Maserati fourth, ahead of the Godía-Menditeguy car.

There was half an hour interval between the heats, and Maseratis changed tyres, which greatly improved their handling in the wet. There were great expectations of a Fangio-Hawthorn duel, but to everybody's disappointment Hawthorn also snapped a half-shaft on the line, and that was that. Fangio shot off with a tremendous burst of acceleration, followed by Requejo's Chevrolet Special and Musso's Ferrari, but Musso quickly went into second place. Behra was fourth with the Centro-Sud Maserati, and Bonomi fifth until he broke his gear box and was out. On lap 3 Musso took the lead and started going away at a rate of a second per lap. At eight laps Musso was 7sec ahead of Fangio, Menditeguy third and drawing rapidly away from Behra, González (Ferrari-Corvette) was fifth. Menditeguy lapped in 2min 34.4-sec.

Musso, after spinning, apparently decided he was going too fast, because he droppe d to 3sec ahead of Fangio and this gap remained constant for several laps. At 14 laps Horace Gould retired with no oil pressure, and soon afterwards Bonnier passed González into fifth place. Fangio made the fastest lap of the day at 68.34 m.p.h. and passed Musso, who slowed so much that Menditeguy passed him into second place.

Finally, Fangio won the heat and the race, Menditeguy was second in the heat, and third overall, while Musso was third, and overall second. Behra's fourth place was a tribute to his skill and probably his was the finest drive of the day, apart from Hawthorn's brilliant first-heat victory.

RONALD HANSEN.

RESULTS

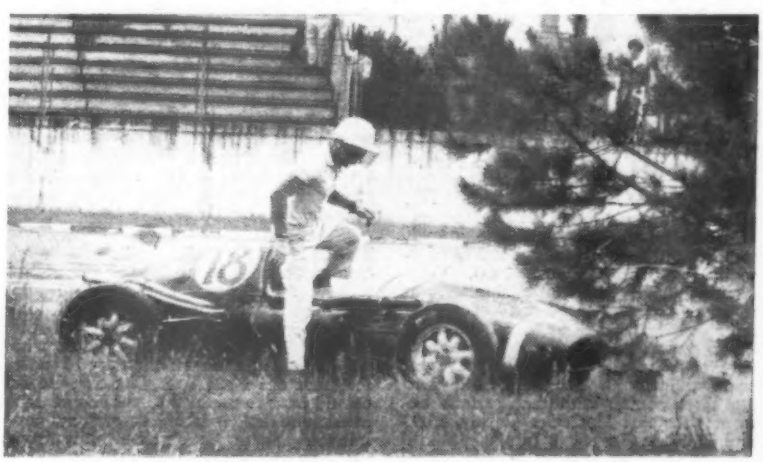
(2 heats, each 30 laps of 2.956 miles each, distance 88.71 miles)

1. Maserati (Juan M. Fangio), 2h 38m 47.3s, at 66.28 m.p.h.
2. Ferrari (Luigi Musso), 2h 39m 56.7s.
3. Maserati (Carlos Menditeguy—Francisco Godia), 1 lap behind.
4. Maserati (Giorgio Scarlatti—Jean Behra), 1 lap behind.
5. Maserati (Joakim Bonnier), 3 laps behind.
6. Ferrari-Corvette Spl (J. F. González), 3 laps behind.
7. Chevrolet Spl (Ramón Requejo), 4 laps behind.
8. Ford Spl (Marcos Galván), 5 laps behind.
9. Chevrolet Spl (Danton Bazet), 6 laps behind.
10. Maserati-Chevrolet Spl (A. Bayardo), 9 laps behind.

Also classified: Horace Gould (Maserati), 20 laps behind.

Fastest lap, Fangio, 2m 34s, 68.34 m.p.h.

Moss climbs out of his Cooper after being shunted on lap 2, heat 1, by Iglesias' Chevrolet Special



The Sport

By PETER GARNIER

DAVID BROWN has announced that Stirling Moss is to drive in the Aston Martin team in the World Championship sports car events at Sebring, the Nurburgring and Le Mans; at Sebring, his co-driver will be Tony Brooks, which should make a wonderful combination. Last time Moss drove for Aston Martins, in 1956, he won the *Daily Herald* Trophy and the sports car race at the Easter Goodwood meeting, was second in the general classification (with Peter Collins) at Le Mans, winning the 3-litre class and setting up a new 3-litre record, was second (3.9sec behind the winner) in the Rouen G.P., and second in the sports car event at the May Silverstone.

The following drivers have also signed contracts to drive in the Aston Martin team: Tony Brooks, Roy Salvadori, Jack Brabham and Stuart Lewis-Evans. No mention is made of the possible entry by Aston Martin into the formula 1 G.P. field.

BERND ROSEMEYER'S standing-start kilometre record of 117.3 m.p.h., set up in an Auto-Union in 1937 (on 26 October), has at long last been beaten. During runs sanctioned by the United States Auto Club at March Field, Riverside, California, on 2 February, Calvin Rice, driving the Hot Rod Magazine Special, covered the standing kilometre in 18.104sec—a speed of 123.556 m.p.h. This figure also constitutes a new International Class B record, and beats the former American National Class B record of 73.15 m.p.h. established by Charles Daigh in a Ford on 7 September 1956.

On the same day, Ed. Cortopassi broke the International and American National Class C standing-start kilometre records, driving the Glass Slipper Special—a remarkable looking device with a Chevrolet engine. His time for the kilometre was 19.213sec, a speed of 116.428 m.p.h.; the previous figure of 105.5 m.p.h. was also set up by Rosemeyer in an Auto-Union, on 27 October 1937.

These world and International Class records have been submitted to the F.I.A. for confirmation.

AMONG THE REGULATIONS that arrived in this office while I was away on the Monte Carlo are those for the Scottish and Acropolis Rallies and the Coupe des Alpes—or, more familiarly, the Alpine. Taking the last first, the dates are 7 to 13 July, organizers are the A.S. of the A.C. de Marseille et Provence, Cours Pierre-Puget 27, Marseille, and the closing date for entries is 15 June at the normal fee, and 23 June at an increased fee.

Cars eligible for the Alpine are normal, modified and special touring, and normal, modified and special *gran turismo*. Total distance is not far short of 2,500 miles, and the route includes speed tests at Monza and Marseilles as well as timed climbs of Mt. Ventoux and Mt. Revard, and regularity tests on the Stelvio, Soubeyrand, Isoard and Allos. The event is divided into three stages, with rest periods between: Stage 1; Marseilles (7 July, 15.00 until 17.00) to Brescia (8 July, 09.50 until 12.50): Stage 2; Brescia (9 July, 04.00 until 05.30) to Megeve (10 July, 01.40 until 03.50): Stage 3; Megeve (11 July, 04.00 until 06.30) to Gap (11 July, 18.48 until 20.00), and Gap (11-12 July, 21.30 until midnight) to the finish at Marseilles (12 July, 14.30 until 15.38). The itinerary for the final stage (the two halves of Stage 3) includes no fewer than 47 named cols . . . not for nothing is it called the Coupe des Alpes!

THE SCOTTISH RALLY, with International permit though it does not count towards the European Rally Championship as do the Alpine and Acropolis, takes place during Whit week, from 26 to 30 May; organizers are the Royal Scottish A.C., secretary A. K. Stevenson, Blythswood Square, Glasgow, C.2. Entries close on 28 April, and cars eligible are normal, modified and special touring, and sports cars. The route covers approximately 1,200 miles of roads in general use in the North and West Highlands of Scotland, and there is a class for "bubble-cars" or miniature vehicles with a cylinder capacity not exceeding 350 c.c.

ACROPOLIS RALLY dates are 3 to 6 April and cars in the following groups are eligible: normal, modified and special touring, and normal, modified and special *gran turismo*. Entries close on 1 March and copies of the regulations, entry forms and full details can be obtained from the Automobile and Touring Club of Greece, 16, Avenue Venizelos, Athens.

ALTERATIONS AND ADDITIONS to the Sporting Calendar which was published on page 134 of the issue of 24 January: There will be no National meeting at Oulton Park on 26 April—the date originally allocated to the British Empire Trophy. This race will be run by the B.R.D.C. at Oulton Park on 12 April, and is, of course, for sports cars only. Other dates in the B.R.D.C.'s 1958 programmes are as follows: 3 May; International *Daily Express* Meeting at Silverstone, which will follow the usual pattern and will include events for formula 1, 2 (probably) and 3, as well as for touring and sports cars. 19 July; British Grand Prix meeting at Silverstone; the programme supporting the G.P. has not yet been finalized.

Also under the heading "National Events," two meetings organized by the Scottish Sporting Car Club should be added. These are the Highland Rally, on 4 to 7 April, and a Speed Event on 28 June, for which the circuit has not been announced.

SHADES OF THE Derbyshire road circuit that was proposed—and quashed—a year or so ago: The Sheffield and Hallamshire club is now running into difficulties over holding trials in the district; Sheffield's rambling clubs, who are hoping to get Parliamentary support, feel that the Peak Park Planning Board should have a say in the granting of permission to hold trials. At present, permission has to be obtained only from landowners and the local authority.

A spokesman of the Sheffield branch of the Council for the Preservation of Rural England, who is also a member of the Peak Park Planning Board and a leading rambler, says that he would like to see trials banned from the open countryside. "There are few enough places where you can get away from the noise of these infernal machines," he says.

Surely, the countryside is there for anyone who wants to use it—provided permission has been given by the owner of the land. Rambling in trials cars is no different from rambling on foot, except that it is noisier—and trials are not held every weekend.

POST-MORTEM on the 1958 Monte Carlo Rally will be held on Friday, 28 February, at the Connaught Rooms, London, W.C.2, starting at 7 p.m. The M.C.R.B.C.C. have been promised a viewing of nearly every film taken of the Rally this year—and what a year! B.B.C., I.T.N., Stanley Schofield and Danny Carter have all promised to lend films. There will be a dinner before the film show, and applications for tickets (£1 2s 6d each) should be made at once to Major Raymond Gough, 2, Malcolm Court, 38, The Avenue, Branksome Park, Bournemouth.

LE MANS organizers have wisely scrubbed the turning circle and minimum ground clearance requirements in this year's regulations.

CLUB LOTUS contrived a most successful evening for their first annual dinner and dance, held last Friday at the Casino Hotel, Taggs Island. "Jabby" Crombac proposed the health of the club and Colin Chapman, as president, replied. Dance prizes were presented by Miss Rita Royce, and even the august engineers from Derby would have been proud to be associated with a chassis having such a specification. At midnight Bill Frost drove his Lotus, magnificently polished, onto the dance floor, and in the passenger seat was Ian Walker. These two received the club's two main trophies for their last season's activities—presented by Hazel, wife of Colin Chapman.

IN THE PRELIMINARY entry list for the Sestriere Rally, which totals only 66 cars, there are, among others, 34 assorted Alfa Romeos, 13 Fiats, three 250 Europa Ferraris, two 300SL Mercedes-Benz, and a single British entered Jaguar. The rally, which counts towards the European Rally Championship, was given an artificial boost last year when the Monte Carlo Rally was cancelled; it takes place on 24 to 28 February, and entries have closed.

A HIGHLIGHT of the V.S.C.C.'s annual film gathering in Hammersmith Town Hall last week was a documentary of the Rivers-Fletcher Equipe's exploits aboard Bugatti and Cooper during the last few years—with modest personal commentary by the Leading Man.

Superb films of last year's British (and European) Grand Prix at Aintree by Shell, and of the Grand Prix de Monaco by Castrol, were supported by sequences on club events—including a pathetically brief snippet on the Vintage Car Rally in America. And, of course, there was an hour's interval so that each of the 600 Vintagents present could tell the others all the stale news about Old Heaps.

COMING SHORTLY

FEBRUARY 13-16.—Winter Rally, Germany.
14-15.—Yorkshire S.C.C. Eighth annual Yorkshire rally, Municipal Car Park, Brook Street, Ilkley, 9 p.m.
15.—Anglia and Prefect O.C. Aquarius rally, Coach and Horses Inn, Croxley Green, Hertfordshire, 5 p.m.
15-16.—Bristol M.C. and L.C.C. Second Bristol rally (restricted), College Motors, Ltd., Rupert Street, Bristol, 8 p.m.
15-16.—Hants and Berks M.C. Riverside rally, Royal Ascot Hotel, Ascot, Berkshire, approximately 7 p.m.
15-16.—North London Enthusiasts' C.C. Jacobean Trophy trial, restricted night navigation rally, Shannon Corner, Kingston By-Pass, Surrey.
15-16.—Sussex Car and M.C.C. Valentine rally, Car Park, Southwick Street, Southwick, Sussex, 11 p.m.
15-16.—B.A.R.C. (S.W. Centre). Southwestern rally, Winchester Motor Co., Ltd., Cross Road, Winchester, Hampshire, 8 p.m.
16.—Eastern Counties M.C. Experts and novices touring rally, starting from Bury St. Edmunds.
16.—Leicestershire C.C. Beacon Trophy rally, Lee Street Car park, 10 a.m.
16.—Linden C.C. Annual winter rally, Cofton Inn, Longbridge, 9.30 p.m.
16.—North Midland M.C. Kitching Trophy trial, Yorkshire Bridge Inn, near Bamford, Derbyshire, 10.30 a.m.
16.—Singer O.C. Afternoon rally, by grandstand, Epsom Downs, Surrey, 2.30 p.m.
16.—Stafford and District C.C. Valentine rally, starting from Penkridge, 2.30 p.m.
16.—Stockport M.C. Afternoon treasure hunt, Five Ways, Stockport, 2.15 p.m.
16.—Windsor C.C. Annual winter touring rally (closed), starting from Taplow, Buckinghamshire, 10.30 a.m.
22-23.—Bolton-le-Moors C.C. Bolton Rally, either E. Bulloughs, Ltd., Manchester Road, Bolton, Lancashire, or Tom Byatt, Ltd., Stoke-on-Trent, Staffordshire, 9 p.m.
22-23.—Guildford M.C. Six Hour night rally (closed), Newlands Corner, 8 p.m.
22-23.—Mid-Cheshire M.C. Birt Trophy rally (restricted), Rootes, Ltd., North Side, Sale, 10 p.m.
22-23.—Oxford University M.D.C. Fourth Targa Rusticana, Bury Barns, Burford, Oxfordshire, 7 p.m.
22-23.—West Essex C.C. Clover Leaf night rally.
22-23.—West Hants and Dorset C.C. Moonfleet rally and tests (closed), lay-by adjacent to Dear Bros. Garage, West Moors, 1 p.m.
23.—Huddersfield M.C.—Jack Leslie Ellis Memorial trophy trial.
23.—M.G. C.C. (S.E. Centre). Signpost rally (closed), Sugar Bowl, Burgh Heath, Surrey, 1 p.m.
23.—Middlesex County A.C. Winter rally, Bullsmoor Lane, Enfield, 10.30 a.m.
23.—Waterloo and District M.C. Rally (closed), Bay Horse, Formby, near Liverpool, 10 a.m.
24 to 2 MARCH.—Ninth International Sestriere Rally, Italy.
11-15.—R.A.C. Rally of Great Britain.
22.—Sebring 12-hour sports car race.

RACE AND RALLY REGULATIONS RECEIVED

Murphy M.C.: March Hares navigation and map reading rally (restricted), 9 March, approximately 170 miles, starting from Acland and Tabor's Garage, Welwyn By-pass, Welwyn, at 9.30 a.m. Entry forms to R. Stevenson, 69, Heathcote Avenue, Hatfield, Hertfordshire, by 20 February.

R.A.F. Association M.C. (N.W. Division): Spring navigation rally (restricted), 22 March, approximately 150 miles, starting from Horsmans Garage, on A550, Queensferry, near Chester, at 7 p.m. Entry forms (fee £1, team 10s) to R. J. Keeley, 642, Prescot Road, Liverpool, 13, by noon, 12 March (£1 5s by noon, 19 March).

Sporting Owner D.C.: Rallye Dubonnet (restricted), 22-23 March, approximately 300 miles, starting from Dunstable at 10 p.m. Regulations from J. S. D. Ayers, Bruce Cottage, Totternhoe, Dunstable, Bedfordshire.

Yorkshire S.C.C.: 4/44 Trophy full sporting trial (restricted), 16 March, starting from the Municipal Car Park, Ilkley, at 10.30 a.m. Entries (fee £1) to R. J. Wilson, Woodlands, Gildersome, near Leeds, by 10 March (£1 10s by 13 March).

Club News

M.C.C.—Provisional results of the thirty-third Exeter Trial held on 3-4 January are as follows:—

Class Awards.—III, Dellow 1172 c.c. (A. E. Cleghorn); IV, Volkswagen 1192 (E. Jackson); V, Morgan Plus 4 1991 (E. H Dennis).

Starting from Launceston

Standard Awards.—Second Class: Dellow 1172 (G. S. Edwards), Dellow 1250 (J. T. Skinner), Dellow 1172 (H. Pollard), Dellow 1172 (Miss V. M. S. Hocking), Ford Zephyr 2553 (S. G. Davey), Dellow 1172 (G. R. Cox); Third: Ford Special 1172 (J. M. Stevens), Ford 1172 (D. G. H. Hilliard), Dellow 1172 (C. R. Parsons), Xigini 1172 (P. S. Banbury), Ford Special 1172 (W. J. Elliott), Ford Special 1172 (J. Wensley), Triumph TR2 1991 (J. Featherstone).

Starting from Kenilworth

Standard Awards.—First Class: Frazer-Nash 1496 (D. J. Parsons); Second: Volkswagen 1192 (J. W. E. Jordan), Hillman 1390 (B. H. Thompson), Renault Dauphine 845 (G. R. J. Stevens), Morgan Plus 4 1991 (W. A. G. Goodall), Land-Rover Diesel 2052 (H. C. Roberts); Third: Morris Minor 1000 948 (J. H. Whittindale), Renault Dauphine 845 (A. R. Blick), Morgan Plus 4 1991 (N. B. Jarrett), Morgan Plus 4 1991 (R. Grant), Renault Dauphine 845 (D. L. Nurse), Goggomobil 293 (H. W. Mitchell), Goggomobil 293 (J. E. D. Brindley), Volkswagen 1192 (T. J. Threlfall), Austin A.50 (J. R. Aley).

Starting from London

Standard Awards.—First Class: Lotus 1172 (A. E. Hay), Dellow 1172 (R. E. Warren), Volkswagen 1192 (M. J. Daniels), Wilson Ford 1172 (Miss D. J. Freeman), Austord 1172 (F. W. Marsh); Second: L.R.G. 1172 (W. E. Wonnacott), Dellow 1172 (D. R. Drew), M.G. TD 1250 (N. E. Denison), Peugeot 403 1468 (F. Denison), Volkswagen 1192 (J. P. Davis), R. W. Dellow 1172 (R. W. Wagger); Third: Olympic 1500 1508 (J. Tucker-Peake), Volkswagen 1192 (A. J. D. Brown), Austin A.50 1500 (C. S. John), Martin 1172 (F. P. Barker), Triumph TR2 1991 (J. F. Hornsby), Trojan 1486 (A. F. Scroggs), Fiat 600 633 (R. J. P. Morley), Triumph TR2 1991 (W. B. Caldwell), Jowett Javelin 1486 (J. Gregson), Ford 1172 (L. G. Nicolls), Morris Minor 803 (J. Lyle), Dellow 1172 (G. Scott-Thorburn), Ford Popular 1172 (V. J. Beauchamp), Renault Dauphine 850 (H. Mawson), Riley 1.5 1489 (F. E. Gooding), Dellow 1172 (M. S. Pearce), Volkswagen 1192 (J. Grapes), Vauxhall Victor 1507 (J. H. Barrow), Jaguar XK140 3442 (W. H. Lowe). **Team Prize:** Morgan Plus 4 (E. H. Dennis), Xigini (P. S. Banbury), Dellow s (J. T. Skinner), 20 marks.

Peterborough M.C.—The Warce Cup Sporting Trial—a B.T.D.A. Gold Star qualifying event—was held on 26 January in the Peterborough area. Results were as follows:—

Warce Cup: Exspence (P. F. Highwood) 142 marks gained; **P.M.C. Cup: Gear Special** (C. W. Pollard) 88; **Class Awards**—First: Austin 7 (R. Davis) 142; J.A.P. Basalnett (A. D. Alldred) 139, Cannon XX (G. J. Newman) 136; Second: Austin (B. J. Bodenham) 136, Cannon IX (R. Wemp) 131, Overton XVII (N. Overton) 130; **Team Prize:** G. J. Newman, R. F. Chappell (R.C.S.), B. H. Dees (P.A.B. Special). P. Highwood won the premier award from R. Davis: he was fastest in the special test.

Airedale and Pennine M.C.—Results of the Pyramid rally held on 2 February were as follows:—

1, Ford Squire (B. Chippendale), 60 marks lost; 2, Wolseley 4/44 (M. Grass), 80; 3, Austin A.70 (W. Holmes), 120.

Rochester, Chatham and District M.C.—Results of the Icicle night navigation rally (closed) held on 1 February were as follows:—

1, Borgward TS (J. Page); 2, Humber Hawk (J. Spiers); 3, Simca Aronde (R. Thomas).

Alvis O.C.—The Kent rally, held on 26 January, was run in unfavourable weather, the last of the snow and slush making conditions hazardous. The 70-mile course covered country lanes in north-west Kent and provided much scope for drivers and navigators. Results were as follows:—

1, Firebird (G. Chace); 2, Silver Eagle (K. Siequiem); 3, Silver Crest (E. Andrews). Navigator's Award: R. Mortimore.

Nottingham S.C.C.—A club room has recently been acquired at the Grosvenor Hotel, Mansfield Road, Nottingham, and a cordial invitation is extended to members of all motoring clubs, who may be passing through the town, to "drop in." The club is open every evening from 6 p.m. until 10 p.m.

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Welbeck Viewpoint
(No. 138 of a series)

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Zodiac saloon with or without automatic transmission or overdrive
Zephyr saloon with or without automatic transmission or overdrive
Consul de luxe saloons
Consul saloons
Squires and Escorts
Anglias and Prefects
Populars

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(Near Baker St. Station)

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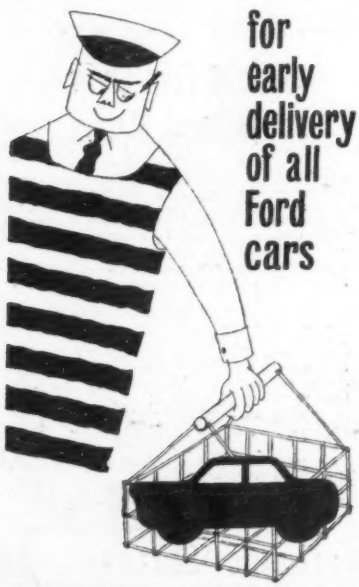

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since 1912
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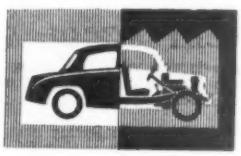
Trade and  *Industry*

Mr. J. F. Powell, M.A., A.R.I.C., has been appointed laboratory manager by the John Bull Rubber Co., Ltd., of Leicester.

In praising the "good braking without fade" of the Standard Pennant in the Road Test of 7 February, we attributed their make wrongly; they are, of course, a product of Girlings.

Ford service weeks will be held commencing on the following dates:—17 February, W. D. Chitty, Ltd., Diss, Norfolk; and 24 February, Gordons (Bolton), Ltd., Bolton, Lancashire.

Mr. Roydon C. Cater, managing director of Simoniz (England), Ltd., has been appointed vice-president of the American parent company in charge of European operations. The appointment coincides with a sales drive on this side of the Atlantic.

Owing to increasing commitments as chairman and managing director of Charles Rickards, Ltd., 56, Bayswater Road, Lancaster Gate, London, W.2, and its associated companies, Mr. Philip C. Rickards has found it necessary to resign from the board of Brew Brothers, Ltd., of Kensington.

Crypton Equipment, Ltd., of Bridgwater, Somerset, makers of a wide range of electrical test and service equipment for motor vehicles, will begin a series of engine performance servicing exhibitions, to be held throughout the country, at Bridgwater from 25 to 28 February inclusive.

Test wells drilled by the BP Exploration Co. have revealed oil at Langar and Bothamsall in the Midlands. The extent of these discoveries is not yet known, but first results have raised hopes that the deposits may well be of commercial significance. The wells are relatively near existing BP oil fields.

Two Fina suppliers have opened new premises in Lancashire. One is the Trafalgar Service Station, Trafalgar Square, Ashton-under-Lyne, operated by H. McLellan and Sons, and the other is the Collingwood Service Station, Collingwood Avenue, Blackpool, operated by Brown and Mallalieu, Ltd.

New distributors and dealers have been appointed by the manufacturers of Simca cars. The distributors are the Denham Service Garage, Oxford Road, Denham, Buckinghamshire; Radwar Motors, 9, Holyhead Road, Hansworth, Birmingham, 21; and the West End Garage, 3-7, White Hall Road, Aberdeen.

In the Road Test of the Oldsmobile Super 88 (31 January) it was stated that four reversing lights are set in the bumper pressing; in this country it is illegal to carry more than two reversing lights, so that two would require to be blanked off, as is done in some American cities where similar regulations are in force. Metric conversions of certain speeds in the performance figures were inaccurate—the mean maximum speed of 113.5 m.p.h. is equivalent to 182.7 k.p.h. and the best reading of 115.0 m.p.h., when converted, is 185.1 k.p.h.

NEW CAR PRICES

	U.K. List Price · With Tax			U.K. List Price · With Tax		
A.C.	£	s	d	£	s	d
Ace	1,188	0	0	1,783	7	0
Ace-Bristol	1,443	0	0	2,165	17	0
Aceca	1,446	0	0	2,170	7	0
Aceca-Bristol	1,700	0	0	2,551	7	0
ALFA ROMEO						
Giulietta Berlina	1,320	0	0	1,981	7	0
Giulietta TI	1,460	0	0	2,191	7	0
Giulietta Veloce	1,945	0	0	2,918	17	0
1900 Super	1,695	0	0	2,543	17	0
Super Sprint	2,450	0	0	3,676	7	0
ALLARD						
Palm Beach (Ford)	1,050	0	0	1,576	7	0
Palm Beach (Jaguar)	1,300	0	0	1,951	7	0
Gran Turismo	1,700	0	0	2,551	7	0
ALVIS						
Graber	2,300	0	0	3,451	7	0
Graber convertible	Export only					
A-SIDDELEY						
Sapphire 346	1,100	0	0	1,651	7	0
(automatic)	1,195	0	0	1,793	17	0
Limousine	1,910	0	0	2,866	7	0
(automatic)	2,099	0	0	3,149	17	0
ASTON MARTIN						
DB Mk. III	2,050	0	0	3,076	7	0
Drophead coupé	2,300	0	0	3,451	7	0
ASTRA						
Utility	308	0	0	471	16	0
AUSTIN						
A.35 2-door	379	0	0	569	17	0
2-door de luxe	387	15	0	582	19	6
A.35 4-door	396	10	0	596	2	0
4-door de luxe	400	0	0	601	7	0
A.35 *Countryman*	444	0	0	667	7	0
A.55	538	0	0	808	7	0
A.55 *de luxe*	570	0	0	856	7	0
A.95 Westminster	689	0	0	1,034	17	0
A.95 *de luxe*	719	0	0	1,079	17	0
A.95 *Countryman*	834	0	0	1,252	7	0
A.105	823	0	0	1,235	17	0
(automatic)	885	10	0	1,329	12	0
AUSTIN-HEALEY						
100-Six	817	0	0	1,226	17	0
BENTLEY						
Series S	3,695	0	0	5,543	17	0
L.W.B.	4,595	0	0	6,893	17	0
Freestone and Webb	5,187	0	0	7,781	17	0
Hooper	4,990	0	0	7,486	7	0
H. J. Mulliner	5,455	0	0	8,183	17	0
James Young	4,915	0	0	7,373	17	0
Continental						
H. J. Mulliner	5,275	0	0	7,913	17	0
Four door	5,355	0	0	8,033	17	0
Park Ward	4,995	0	0	7,493	17	0
BERKELEY						
Two-seater 328 c.c.	332	7	6	499	18	3
492 c.c.	381	15	4	573	19	10
492 c.c. *hardtop*	397	14	7	597	18	11
B.M.W.						
501	1,638	0	0	2,458	7	0
502 2.6-litre	1,792	0	0	2,687	7	0
502 3.2-litre	2,220	0	0	3,581	7	0
503	3,200	0	0	4,801	7	0
507	2,800	0	0	4,201	7	0
BORGWARD						
Isabella	830	0	0	1,246	7	0
Isabella estate car	880	0	0	1,321	7	0
Touring Sport	950	0	0	1,426	7	0
TS coupé	1,330	0	0	1,996	7	0
Hansa 2400	1,500	0	0	2,251	7	0
BRISTOL						
405	2,390	0	0	3,586	7	0
405 *Convertible*	2,450	0	0	3,767	7	0
BUICK						
63 Century	2,175	0	0	3,263	17	0
CADILLAC						
6309 Fleetwood	3,425	0	0	5,138	17	0
6239D sedan de ville	3,125	0	0	4,688	17	0
CHEVROLET						
Bel-Air	1,410	0	0	2,116	7	0
Bel-Air Sport	1,440	0	0	2,161	7	0
Bel-Air convertible	1,555	0	0	2,333	17	0
Nomad estate car	1,500	0	0	2,251	7	0
Corvette	1,905	0	0	2,860	7	0
CHRYSLER						
300C	2,740	0	0	4,111	7	0
300C convertible	2,960	0	0	4,441	7	0
Imperial	2,885	0	0	4,328	17	0
Crown	3,045	0	0	4,568	17	0
CITROEN						
2 c.v.	389	0	0	598	7	0
DS19	1,150	0	0	1,726	7	0
CONTINENTAL						
Mark II coupé	4,900	0	0	7,351	7	0
DAIMLER						
Century II	1,119	2	0	1,680	0	0
One-O-Four	1,595	15	4	2,395	0	0
DK400A	2,795	15	4	4,195	0	0
DK400B	2,875	15	4	4,315	0	0
Hooper limousine	4,385	0	0	6,578	17	0
D.B.						
Rally HBR 5	1,299	2	0	1,950	0	0
DELLOW						
Mark IIC sports	465	0	0	698	17	0
Mark IIE sports	500	0	0	751	7	0
Mark V lightweight	525	0	0	788	17	0
D.K.W.						
Fixed-head coupé	765	0	0	1,148	17	0
Four-door	798	0	0	1,198	7	0
Universal estate car	830	0	0	1,246	7	0
1000 fixed-head coupé	850	0	0	1,276	7	0
DODGE						
Custom Royal	2,040	0	0	3,061	7	0
EDSEL						
Pacer	1,741	8	0	2,613	9	0
Citation hardtop	2,165	12	0	3,249	15	0
FACEL VEGA						
FVS hardtop	3,150	0	0	4,726	7	0
(automatic)	2,980	0	0	4,471	7	0
FAIRTHORPE						
Atomota	426	0	0	640	7	0
Electron Minor	479	0	0	719	17	0
Electron	769	0	0	1,154	17	0
FIAT						
500	350	0	0	526	7	0
500 de luxe	370	0	0	556	7	0
600	432	0	0	649	7	0
600 *Convertible*	452	0	0	679	7	0
Multipla 4/5	532	0	0	799	7	0
Multipla 6	540	0	0	811	7	0
1100	578	10	0	869	2	0
1200 models	(prices not yet announced)					
1400B	774	0	0	1,162	7	0
1900B	980	0	0	1,471	7	0
1900B *four-light*	1,385	0	0	2,078	17	0
FORD						
Popular	295	0	0	443	17	0
Anglia	380	0	0	571	7	0
Anglia de luxe	400	0	0	601	7	0
Prefect	415	0	0	623	17	0
Prefect de luxe	438	0	0	658	7	0
Escort	434	0	0	652	7	0
Squire	463	0	0	695	17	0
Consul	545	0	0	818	17	0
Consul de luxe	580	0	0	871	7	0
Consul convertible	660	0	0	991	7	0
Consul estate car	710	0	0	1,066	7	0
Zephyr	610	0	0	916	7	0
(automatic)	725	0	0	1,088	17	0
Zephyr convertible	778	0	0	1,168	7	0
Zephyr estate car	775	0	0	1,163	17	0
Zodiac	675	0	0	1,013	17	0
(automatic)	790	0	0	1,186	7	0
Zodiac convertible	873	0	0	1,310	17	0
Zodiac estate car	845	0	0	1,268	17	0
FORD (Canadian)						
Custom 300	1,307	0	0	1,961	17	0
Fairlane 500 Town	1,377	0	0	2,066	17	0
500 *Town Victoria*	1,409	0	0	2,114	17	0
Ranch Wagon	1,362	0	0	2,044	7	0
FORD (Germany)						
12M	702	0	0	1,054	7	0
15M	763	0	0	1,145	17	0
17M	(price not yet announced)					
FRAZER NASH						
Gran Turismo	2 166	0	0	3,250	7	0
Sebring	2,166	0	0	3,250	7	0
GOGGOMOBIL						
T.300	329	0	0	494	17	0
T.400	342	6	0	514	16	0
TS.300	416	0	0	625	7	0
TS.400	428	13	4	644	7	0
TS.300 *convertible*	458	0	0	688	17	0
TS.400 *convertible*	471	0	0	707	17	0
HILLMAN						
Minx II Special	498	0	0	748	7	0
Minx II de luxe	529	0	0	794	17	0
Two-tone	539	0	0	809	17	0
Minx II convertible	598	0	0	898	7	0
Minx II estate car	625	0	0	938	17	0
Husky	465	0	0	698	17	0
HUDSON						
Rambler de luxe	1,250	0	0	1,876	7	0
Rambler Super	1,285	0	0	1,928	17	0
Estate car	1,375	0	0	2,063	17	0
Rambler Custom	1,350	0	0	2,026	7	0
Ambassador Super	1,630	0	0	2,446	7	0
Custom	1,700	0	0	2,551	7	0
Estate car	1,795	0	0	2,693	17	0
HUMBER						
Hawk II	840	0	0	1,261	7	0
(automatic)	955	0	0	1,433	17	0
Hawk II estate car	975	0	0	1,463	17	0
Touring limousine	920	0	0	1,381	7	0
ISETTA (Gt. Britain)						
300	255	1	8	389	19	6
Luxury Plus	265	15	0	399	19	6
600	319	0	0	479	17	0
JAGUAR						
2.4	966	0	0	1,495	7	0
Special equip. model	1,019	0	0	1,529	17	0
3.4	1,114	0	0	1,672	7	0
XK 150	1,175	0	0	1,763	17	0
(automatic)	1,303	0	0	1,955	17	0
Special equip. model	1,292	0	0	1,939	7	0
Convertible	1,195	0	0	1,793	17	0
D-type sports 2-seater	2,585	0	0	3,788	17	0
XK SS	Export only					
Mark VIII	1,219	0	0	1,892	17	0
(automatic)	1,331	0	0	1,997	17	0

(continued overleaf)

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1958 HEALEY Six, every extra, 700 miles **£1,455**
1957 HEALEY Six, 5,000 m., overdrive, heater **£945**
1957 SUNBEAM Rapier, 9,000, red/ivory **£895**
1957 TR3, discs, 5,000, blue..... **£895**
1957 MINOR Traveller, radio, heater **£645**
1956 XK140 drophead, 11,000 miles, grey/red **£1,245**
1956 TR3, wire wheels, overdrive, white **£775**
1956 HEALEY BN2, ice blue specimen **£845**
1956 CONSUL Mk. II, virtually new **£715**
1956 MG A, radio, heater, blue **£795**
1955 ZA Magnette, radio/red..... **£685**
1955 TR2, black, one owner..... **£685**
1955 MINOR convertible, superb, blk. **£495**
1955 XK140 roadster, superb BRG... **£995**
1955 SAPPHIRE, one owner, heater **£645**
1954 XK120 hardtop, spotless, ivory **£795**
1954 HEALEY BN1, superb example **£645**
1954 TF, one owner, green..... **£595**
1953 VELOX, blue, radio, heater..... **£445**
1953 TD, hard/soft top, black..... **£525**
1952 XK120, nice green, specimen **£595**
1952 JAGUAR Mark VII, black, radio, heater **£565**
1951 XK120, lovely white, specimen **£575**
1950 DAIMLER Consort, one owner **£445**
1949 BENTLEY Mark VI, Park Ward drophead **£1,175**

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In beautiful condition.

£1,775

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SLOane 4086/8088

NEW CAR PRICES

U.K. List Price · With Tax

	£	s	d	£	s	d
JENSEN						
541	1,435	0	0	2,153	17	0
541 *de luxe*	1,750	0	0	2,626	7	0
541 *R*	1,910	0	0	2,866	7	0
Interceptor	1,800	0	0	2,701	7	0
LAGONDA						
3-litre	1,995	0	0	2,993	17	0
LANCIA						
Appia Series II	1,125	0	0	1,668	17	0
Aurelia Gran Turismo	2,230	0	0	3,346	7	0
Flaminia	2,500	0	0	3,751	7	0
LINCOLN						
Capri	2,682	0	0	4,024	7	0
Première	2,910	0	0	4,336	7	0
LLOYD						
LP 600	390	0	0	586	7	0
LC 600 Cabrio	427	0	0	641	17	0
LS 600 Combi	405	0	0	608	17	0
LOTUS						
Seven	690	0	0	1,036	7	0
Elite	1 300	0	0	1,951	7	0
Sports	1,021	0	0	1,511	2	0
Club	1,309	0	0	1,937	7	0
Le Mans 75	1,625	0	0	2,405	4	0
MEADOWS						
Frisky	299	0	0	449	17	0
Friskysport	322	0	0	434	7	0
MERCEDES-BENZ						
180	1,195	0	0	1,793	17	0
180D (diesel)	1,295	0	0	1,889	17	0
190	1,250	0	0	1,876	7	0
190SL	1,930	0	0	2,896	7	0
219	1,430	0	0	2,146	7	0
220S	1,595	0	0	2,393	17	0
300 automatic	3,600	0	0	5,401	7	0
300SL Roadster	3,750	0	0	5,626	7	0
MERCURY (American)						
Monterey Fordor	1,634	0	0	2,452	7	0
Montclair Fordor	1 893	0	0	2,840	17	0
Phaeton	1,924	10	0	2,888	2	0
Convertible	1,979	0	0	2,969	17	0
MERCURY (Canadian)						
Monterey Fordor	1,481	0	0	2,222	17	0
Monterey Phaeton	1,640	0	0	2,461	7	0
Montclair Fordor	1,716	0	0	2,575	7	0
Montclair Phaeton	1,765	0	0	2,648	17	0
METROPOLITAN						
Hardtop	498	10	0	749	2	0
Convertible	516	0	0	775	7	0
M.G.						
A	663	0	0	995	17	0
Hardtop	724	0	0	1,087	7	0
Magnette	714	0	0	1,072	7	0
MORGAN						
4/4 Series II	498	0	0	748	7	0
Competition	550	0	0	826	7	0
Plus 4 (TR) 2-seater	645	0	0	968	17	0
Convertible	693	0	0	1,040	17	0
2-seater (Vanguard)	594	0	0	892	7	0
Convertible	641	0	0	962	17	0
MORRIS						
Minor 1000 2-door	416	0	0	625	7	0
2-door de luxe	433	10	0	651	12	0
4-door	441	0	0	662	17	0
4-door de luxe	462	0	0	694	7	0
Minor Tourer	416	0	0	625	7	0
Minor Tourer de luxe	433	0	0	651	12	0
Minor Traveller	471	10	0	708	12	0
Minor Traveller de luxe	488	10	0	734	2	0
Cowley	555	10	0	834	12	0
Oxford III	589	0	0	884	17	0
Oxford Traveller	665	0	0	999	17	0
Isis II	607	0	0	911	17	0
(automatic)	712	0	0	1,069	7	0
Isis II de luxe	650	0	0	961	7	0
Isis Traveller	725	10	0	1,089	12	0
NASH						
Rambler Custom	1,350	0	0	2,026	7	0
Rambler Custom S.W.	1,440	0	0	2,161	7	0
Ambassador Vee-8 Custom	1,700	0	0	2,551	7	0
Custom S.W.	1,795	0	0	2,693	17	0
OLDSMOBILE						
88	1,820	0	0	2,731	7	0
Super 88	1,965	0	0	2,948	17	0
98	2,260	0	0	3,391	7	0
PACKARD						
4-door Sedan	1,680	0	0	2,521	7	0
Station Wagon	1,745	0	0	2,623	17	0
Hawk Hardtop	2,004	0	0	3,007	7	0
PANHARD						
Dyna Grand Standing	702	8	8	1,055	0	0
Convertible	1,032	8	8	1,550	0	0
PEERLESS						
G.T. 2-litre	998	0	0	1,498	7	0
PEUGEOT						
203	633	9	1	952	8	2
403	796	2	11	1,195	11	5
403 *station wagon*	865	0	0	1,298	17	0
PLYMOUTH						
Savoy Vee-8	1,718	0	0	2 578	7	0
Belvedere Convertible	1,790	0	0	2,686	7	0
Savoy Suburban	1 915	0	0	2,773	17	0
Fury	1,890	0	0	2,971	7	0
PONTIAC						
Chieftain Catalina	1,980	0	0	2,971	7	0
Bonneville Custom	2,300	0	0	3,461	7	0
Super Chief Catalina	2,040	0	0	3,061	7	0
Star Chief Catalina	2,150	0	0	3,226	7	0

U.K. List Price · With Tax

	£	s	d	£	s	d
PORSCHE						
356A/1600 fixed head	1,330	0	0	1,996	7	0
Hardtop (detachable)	1,450	0	0	2,176	7	0
Cabriolet (detachable)	1,490	0	0	2,236	7	0
356A/1500 fixed head	2,100	0	0	3,151	7	0
Hardtop Carrera	2,220	0	0	3.331	7	0
Cabriolet Carrera	2,260	0	0	3,391	7	0
PRINCESS						
IV	2,250	0	0	3,376	7	0
IV limousine	2,360	0	0	3,541	7	0
L.W.B.	2,150	0	0	3,226	7	0
L.W.B. limousine	2,150	0	0	3,226	7	0
RENAULT						
750	437	0	0	656	17	0
Dauphine	530	0	0	796	7	0
(Ferlec clutch)	555	10	0	834	12	0
Frégate de luxe	894	10	0	1,343	2	0
Domaine estate car	894	10	0	1,343	2	0
Grand Pavor's Transfluide	1,027	10	0	1,542	12	0
RILEY						
One-point-five	575	0	0	863	17	0
Two-point-six	940	0	0	1,411	7	0
(automatic)	1,045	0	0	1,568	17	0
ROLLS-ROYCE						
Silver Cloud	3,795	0	0	5,693	17	0
Limousine	4,595	0	0	6,893	17	0
Freestone and Webb	5,282	0	0	7,924	7	0
Freestone and Webb convertible	5,495	0	0	8,243	17	0
Hooper	5,085	0	0	7 628	17	0
H. J. Mulliner	5,550	0	0	8,326	7	0
James Young	5,010	0	0	7,517	7	0
Silver Wraith						
Freestone and Webb limousine	5,638	0	0	8,458	7	0
Freestone and Webb 7-passenger limousine	5,752	0	0	8,629	7	0
Park Ward	5,495	0	0	8,243	17	0
Park Ward 7-passenger limousine	5,085	0	0	8,708	17	0
H. J. Mulliner	5,625	0	0	8,438	17	0
Hooper limousine	5,580	0	0	8,371	7	0
Hooper 7-passenger	5,805	0	0	8,708	17	0
James Young	5,680	0	0	8,521	7	0
ROVER						
60	883	0	0	1,325	17	0
75	963	0	0	1,445	17	0
90	999	0	0	1,499	17	0
105S	1,088	0	0	1,633	7	0
105R	1,124	0	0	1,687	7	0
105R *de luxe*	1,155	0	0	1,733	17	0
Land-Rover estate car						
S.W.B.	750	F	0	1,058	17	0
S.W.B. Diesel	805	0	0	1,208	17	0
L.W.B.	815	0	0	1,223	17	0
SIMCA ARONDE						
1300 Elysée	592	0	0	889	7	0
Montlhéry	616	0	0	925	7	0
Grande Large (Flash)	665	0	0	998	17	0
Grande Large (Special)	692	0	0	1,039	7	0
SIMCA VEDETTE						
Beaulieu	965	10	0	1,449	12	0
SINGER						
Gazelle	598	0	0	898	7	0
Convertible	665	0	0	998	17	0
Estate Car	695	0	0	1 043	17	0
SKODA						
440	575	0	0	863	17	0
445	625	0	0	938	17	0
STANDARD						
Eight	425	0	0	637	17	0
Super Ten	435	0	0	653	17	0
Pennant	485	0	0	728	17	0
Companion estate car	495	0	0	743	17	0
Ensign	599	0	0	899	17	0
Vanguard III	675	0	0	1,013	17	0
(automatic)	790	0	0	1,186	7	0
Estate car	765	0	0	1,148	7	0
Sportsman	820	0	0	1,231	7	0
STUDEBAKER						
Scotsman 2-door	1,130	0	0	1,696	7	0
Estate car	1,240	0	0	1,861	7	0
Commander 2-door	1,400	0	0	2,101	7	0
President 2-door	1,490	0	0	2,236	7	0
SUNBEAM						
Rapier	695	0	0	1,043	17	0
Convertible	735	0	0	1,103	17	0
TRIUMPH						
TR3	699	0	0	1,049	17	0
Hardtop	734	0	0	1,102	7	0
TURNER						
A.35 Sports	575	0	0	862	17	0
VAUXHALL						
Victor	498	0	0	748	7	0
Victor Super	520	0	0	781	7	0
Velox III	655	0	0	983	17	0
Cresta II	715	0	0	1,073	17	0
VOLKSWAGEN						
Standard saloon	435	0	0	653	17	0
De luxe	505	0	0	758	17	0
Convertible	682	10	0	1,025	2	0
Karmann-Ghia coupé	822	10	0	1,235	2	0
WOLSELEY						
1500	530	0	0	796	7	0
Fifteen-fifty	660	0	0	991	7	0
(manumatic)	693	6	9	1,041	7	0
Six-ninety III	850	0	0	1,276	7	0
(automatic)	955	0	0	1,433	17	0